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ABSTRACT

Technical specifications, operating procedures, and reference information for the National Center for Higher Education Management Systems' (NCHEMS) Student Flow Model (SFM) computer programs are presented. Included are narrative descriptions of the system and its modules, specific program documentation for each of the modules, system flowcharts, sample data input forms, and record/file format descriptions. This document should be read in conjunction with the Student Flow Model SFM-IA: Introduction (IR 002 460). (DGC)

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STUDENT FLOW MODEL SFM-IA: SYSTEM DOCUMENTATION

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Preliminary Edition
Technical Report 41B

STUDENT FLOW MODEL SFM-IA
SYSTEM DOCUMENTATION

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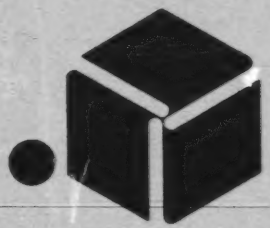

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TECHNICAL REPORT 41B

STUDENT FLOW MODEL SFM-IA
SYSTEM DOCUMENTATION

Technical Report No. 41B

John C. Busby
Richard S. Johnson

May 1974

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This document contains a detailed description of the computer programs and their limitations. NCHEMS has released these programs as Type II software. The following description of a Type II program product is contained in the NCHEMS Policies and Procedures Manual:

A. Type II: NCHEMS Early Release Programs

Software in this category will contain no NCHEMS warranty of any type. In addition, the standard disclaimers limiting NCHEMS liability will also be present. In general, the software will be programs that have not yet been adequately tested or documented for release as Type I software. Programs released under Type II will not be kept up to date, nor will there be any guarantee that two separate distributions of the same program will agree, since they will be simply a release of the program at some early stage of development.

Type II software will be released to individual users after approval by the Director.

NCHEMS support for software released under Type II will be limited to telephone and letter correspondence concerning implementation or utilization of the software. No on-site assistance is anticipated for software released under Type II, and response will be limited to a "time available" basis.

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Introduction to the
Student Flow Model SFM-IA

The NCHEMS Student Flow Model SFM-IA is an analytical tool analyzing the historical movement of students between the various fields of study and student levels in an institution and for estimating the future enrollments in each field of study (or student program) and student level combination in the institution. Modular in concept, the system can be implemented in phases to permit an institution to begin using its results immediately and to incorporate additional levels of analysis as needed and as the required input data becomes available.

The Student Flow Model SFM-IA can be used alone in an independent analysis of student progression through the institution. Schools that are also using the NCHEMS Resource Requirements Prediction Model 1.6 (RRPM) will find SFM-IA useful in projecting future students enrollments for RRPM cost projection purposes.

SYSTEM NARRATIVE AND

GENERAL COMMENTS

SYSTEM OBJECTIVES

The NCHEMS Student Flow Model SFM-IA is a computer based system designed to simulate the progression of students through an institution. A conceptual description of the model and the preparation of the required input data is described in Student Flow Model SFM-IA Introduction, Technical Report 41A. The reader should be familiar with the Introduction in addition to the System Documentation prior to making changes to the system or preparing job control language for a particular institutional problem.

The system consists of 17 programs and a number of sort routines. The programs are all written in a low-level ANS COBOL. Programs are also written entirely in SECTIONS to facilitate the process of reducing core requirements and to assist in distinguishing the various logical functions performed by the system.

As distributed by NCHEMS the Student Flow Model SFM-IA will run in a 50K partition in an IBM OS or DØS environment.

SYSTEM OPERATIONAL FLOW

The Student Flow Model SFM-IA computer software consists of four separate but interrelated modules. These modules and their primary functions are:

1. HISTORY MODULE - analyzes institutional data to quantify historical student flow patterns within the institution. The results of this analysis may then serve as input to the ADMISSIONS and TRANSITION modules.

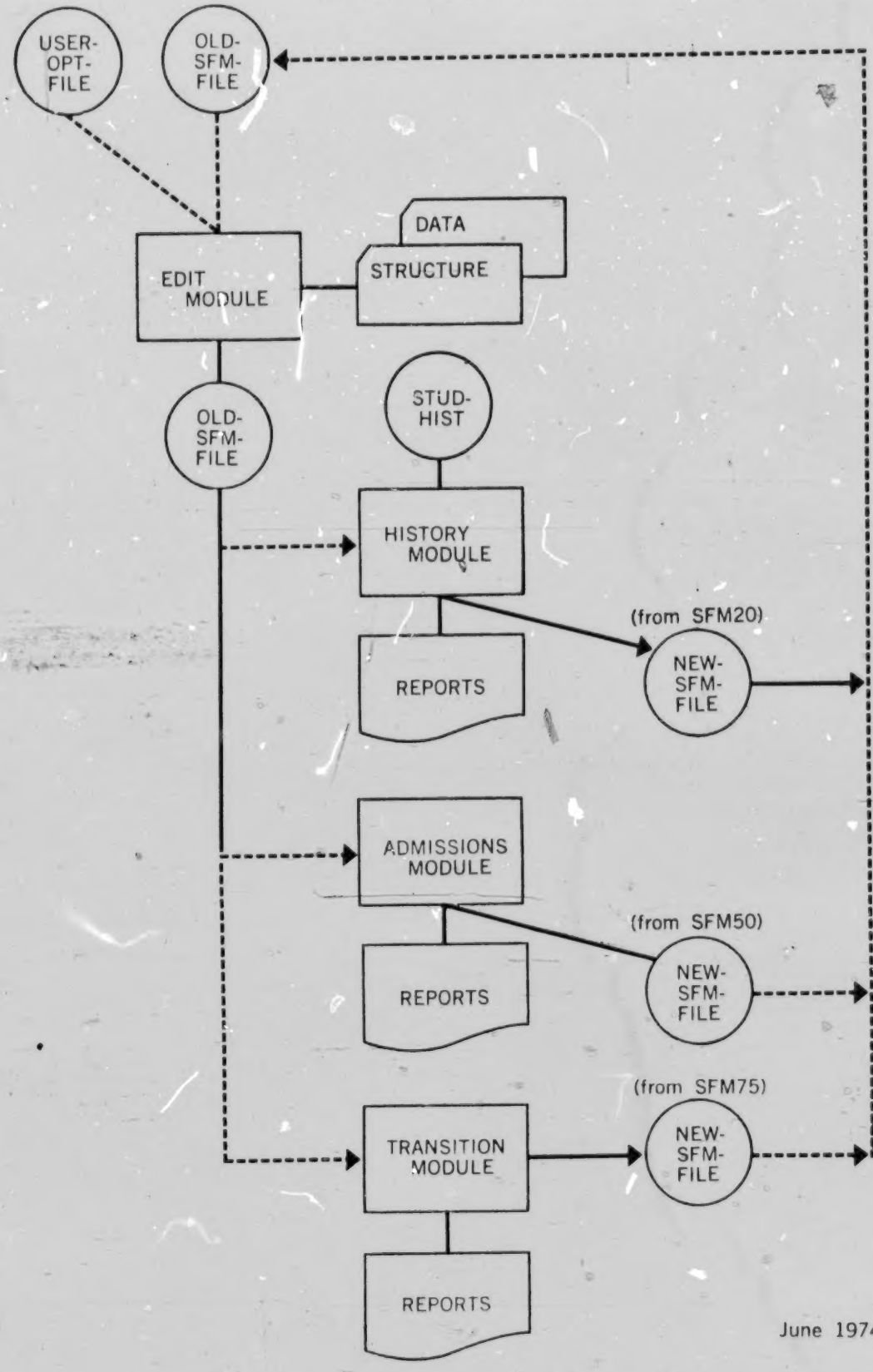
2. ADMISSIONS MODULE - projects the number of new students enrolling in the institution at each program and level. These projections are based on estimates of the number of students in each source population from which the institution draws its students and estimates of the way in which students from these populations distribute themselves within the institution.

3. TRANSITION MODULE - estimates the number of enrolled students in each program and level combination that will exit from the institution (e.g., graduate or drop out) and the number that will continue in the institution in each Program/Student Level combination.

4. EDIT MODULE - reads and edits input data for each of the other three modules.

Figure 1 contains a system overview of these four modules. Figure 2 illustrates an alternative way of viewing the logic flow between the modules.

Figures 3 through 6 indicate the logic flow between individual programs and sort routines for each module. Note that all sorts are ascending sorts on character position 1 through 37 with only the input and output files being different. For many computer operating systems, this facilitates the use of a single sort routine or procedure.

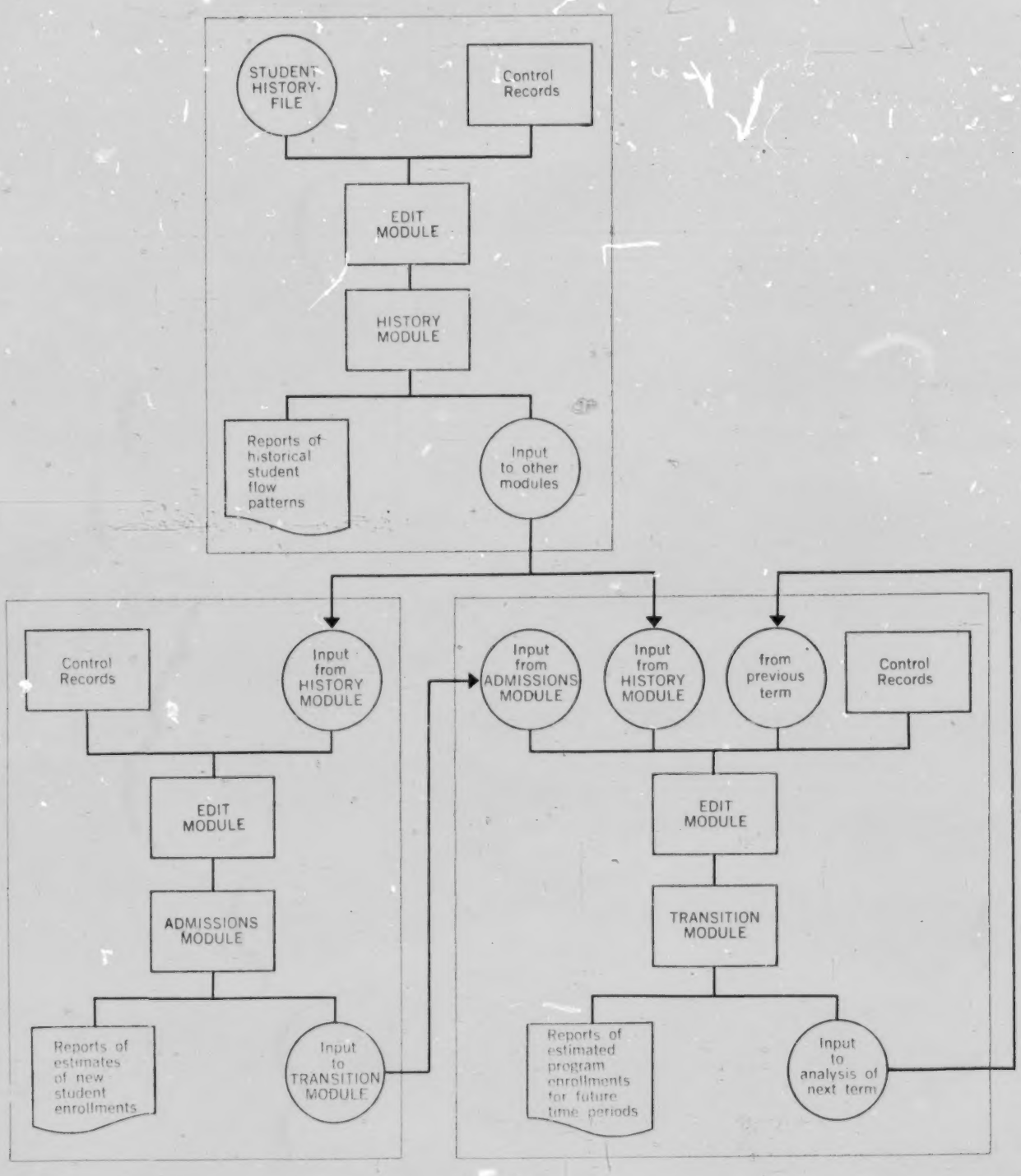


June 1974

Figure 1 SYSTEM OVERVIEW

Figure 2

Overview of Student Flow Model SFM-1A
(Software Modules)



NCHEMS STUDENT FLOW MODEL SFM-IA
EDIT MODULE

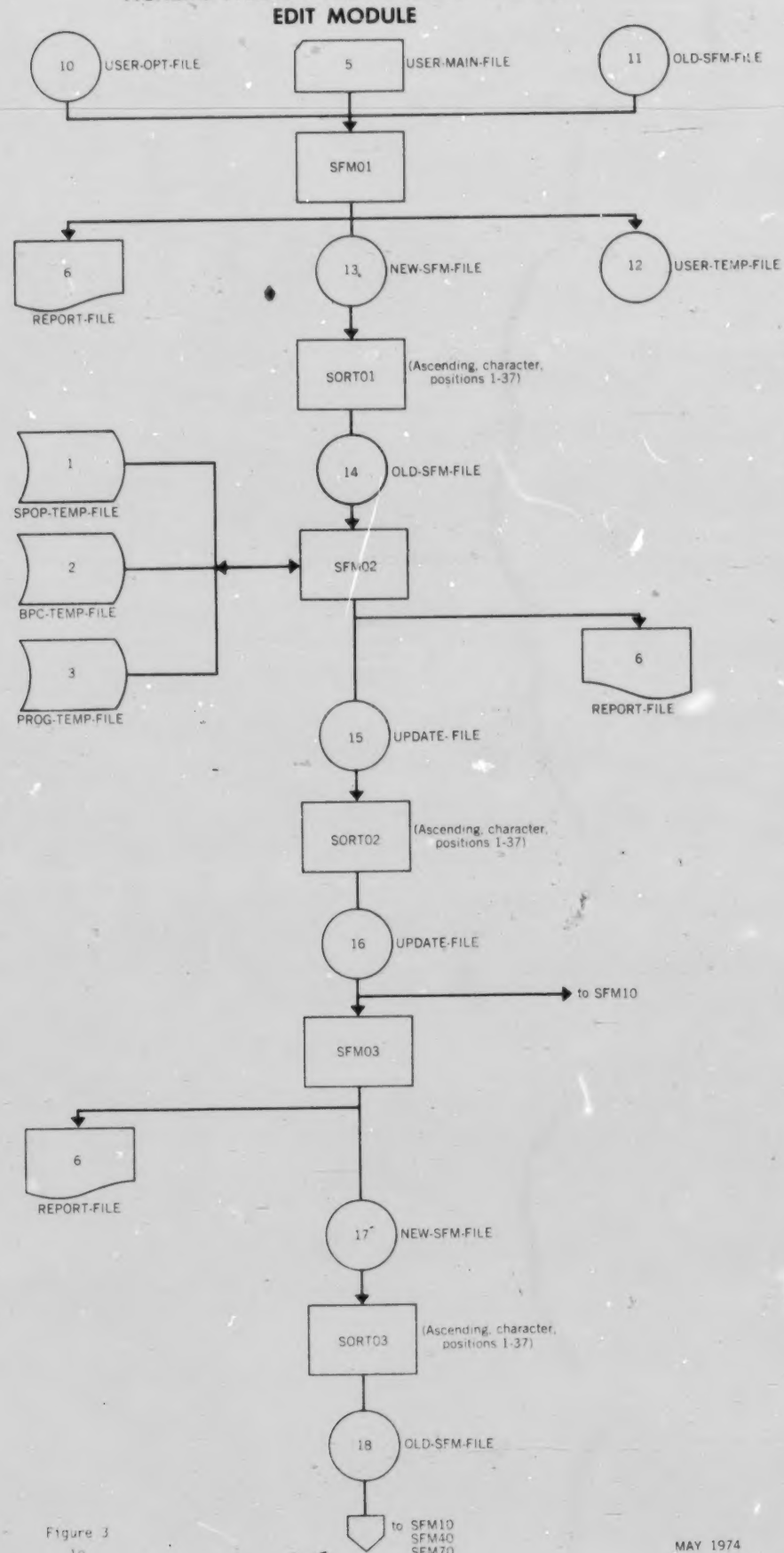


Figure 3

NCHEMS STUDENT FLOW MODEL SFM-IA
HISTORY MODULE

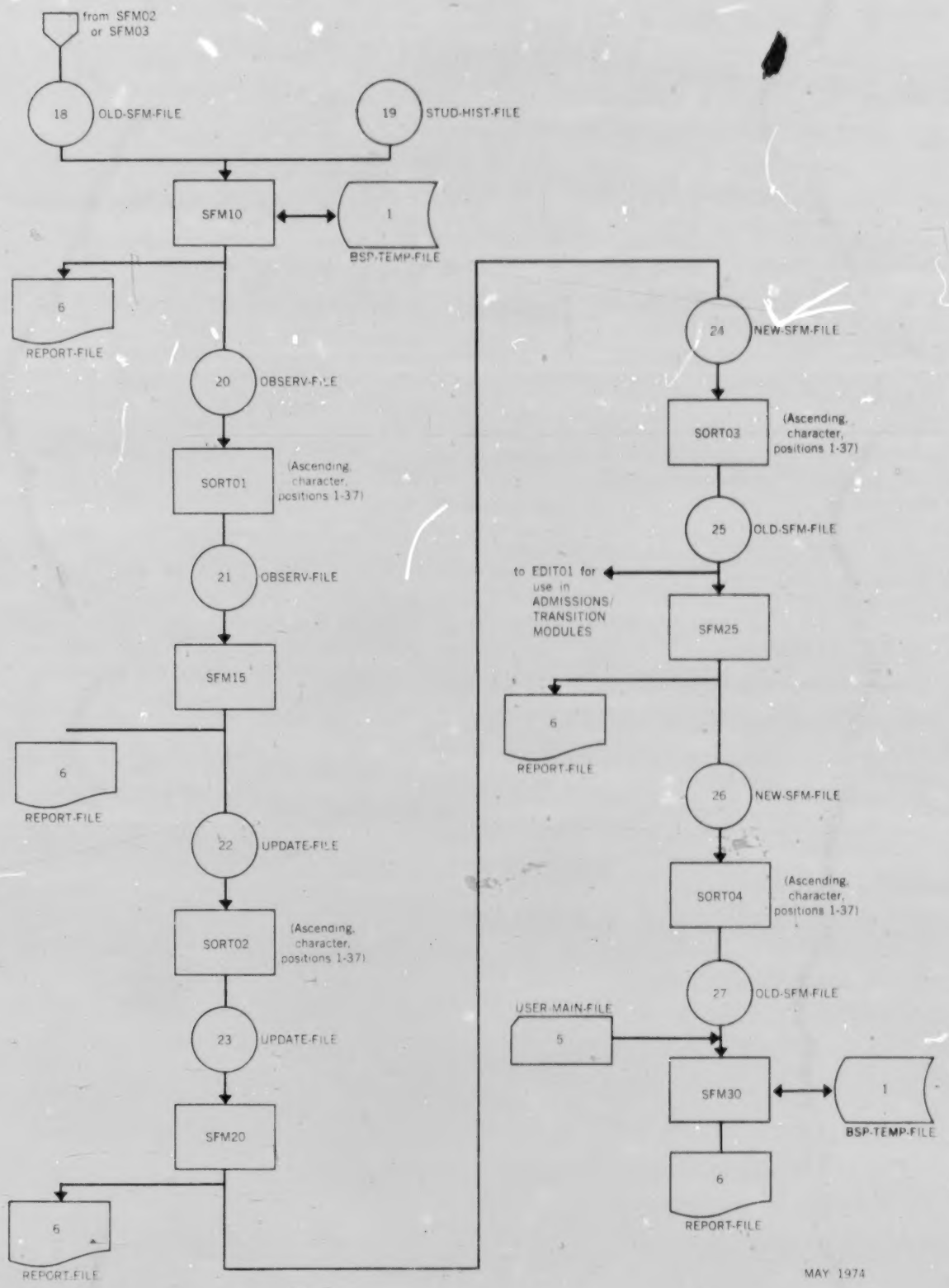


Figure 4

NCHEMS STUDENT FLOW MODEL SFM-IA
ADMISSIONS MODULE

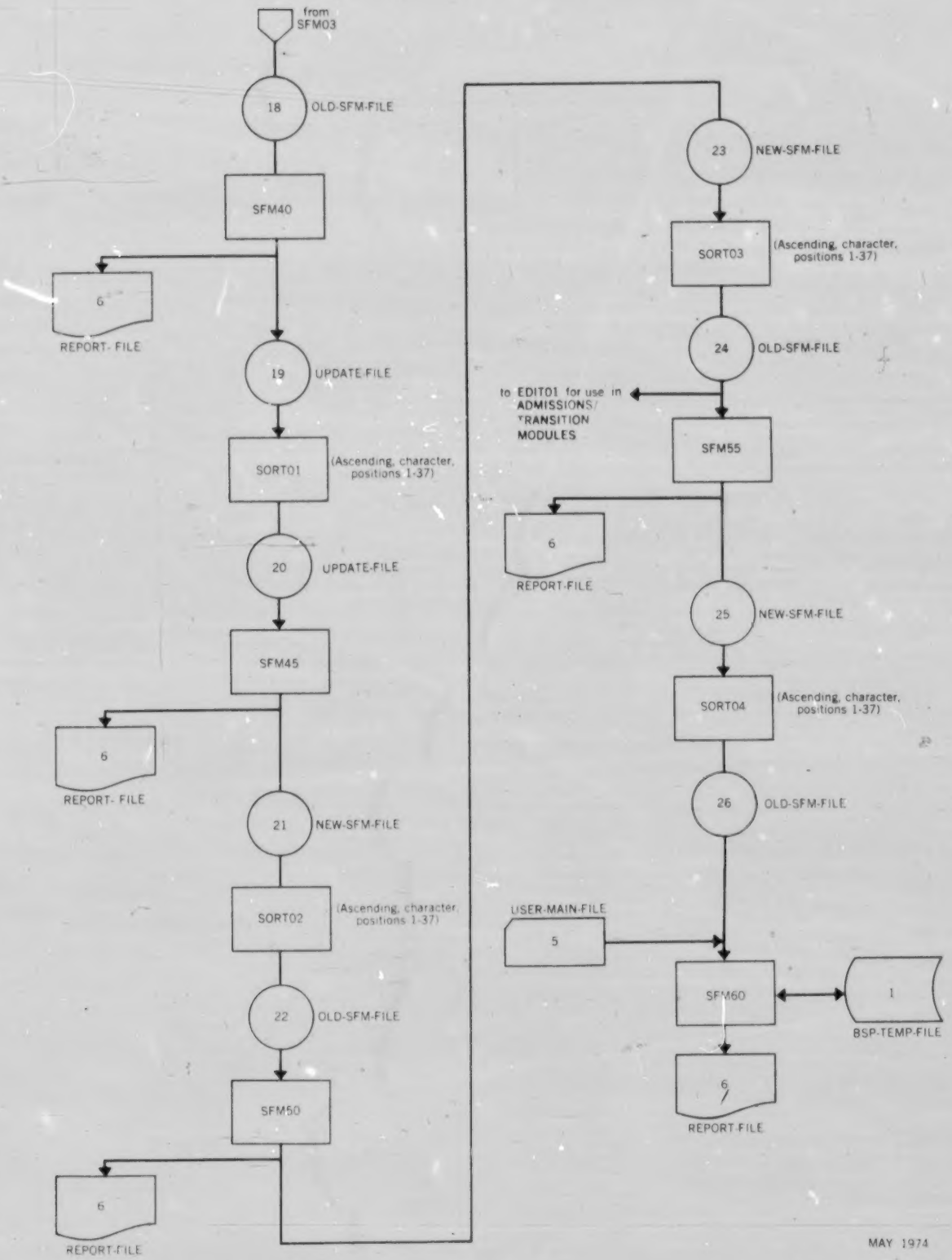


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Figure 5

NCHEMS STUDENT FLOW MODEL SFM-IA
TRANSITION MODULE

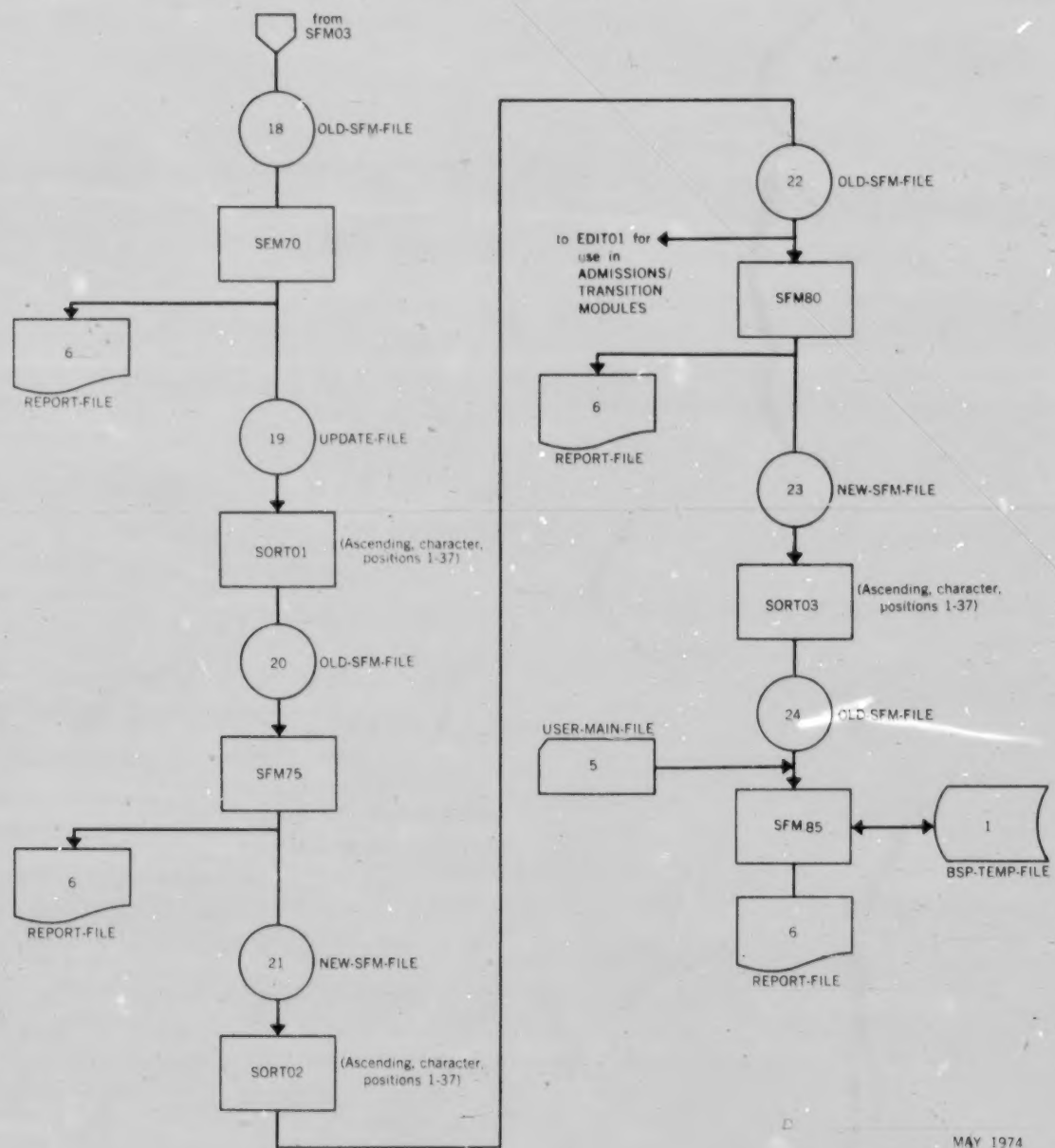

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Figure 6

FILE CONSIDERATIONS

The number of records that may be expected in each file is difficult to estimate because of differences in the structure of institutions defined to the system and because of differences in the complexity of admissions and transition patterns. Knowing the number of records generated by actual data may be useful however in developing at least rough estimates. There are three sets of files to be considered when estimating file sizes. Table 1 indicates these three file sets and the number of records that have been generated using two actual sets of data.

TABLE 1

FILE SIZE DATA

*	FILE NAME	COMMENTS
19 20,21	STUD-HIST-FILE OBSERV-FILE	1 record per record on the STUD-HIST-FILE. Typically 5,000-100,000 records of 80 characters each.
1 1 2 3	BSP-TEMP-FILE SPOP-TEMP-FILE BPC-TEMP-FILE PROG-TEMP-FILE	1 to 50 records of 1200-1800 characters each.
12	USER-TEMP-FILE	10-200 records of 80 characters each.
	All other files passed between programs	80 character records. For a 20 program, 3 student level institution - approximately 500-800 records. For a 100 program, 3 student level institution - approximately 14,000 - 18,000 records.

*File number used in Figures 3-6.

TABLE OVERFLOW FILES

Programs SFM02, SFM10, SFM30, SFM60, and SFM85 build tables containing names and other information about defined Broad Program Categories, Programs, Source Ponulations, Student Levels and Terms. Because up to 900 Broad Program Categories, Programs and Source Populations may be defined, the in-core tables are not sufficiently large to maintain all of the data. Overflow files are therefore used for these three categories. When an in-core table becomes full the table is written to the appropriate file. The routines that search for a particular table entry must determine if the overflow file has been used, and if so, they must also include entries on that file in a search. Overflow files may be assigned to any sequential access device. If they are used at all, however, they will likely be accessed frequently and should be assigned to a high speed device if possible.

Program SFM02 uses a separate file for each of the three tables that may overflow. The other four programs use a single file and include an additional character in each record which indicates the table that the data in the record is from.

The use of the overflow files greatly increases execution time. This is particularly true in program SFM10 which will typically perform twenty to several hundred thousand searches. (The other programs typically perform only several hundred or several thousand searches.) It is therefore strongly recommended that the size of the in-core tables be increased if the additional core is available. Figure 3 shows, in general, the data items that must be changed to alter the size of an in-core table. This example shows a table

being increased from 30 to 50 entries. Note that the size of the record in the file definition section must be as large as the largest of the several tables that may be written on the file.

FIGURE 7

CHANGING AN IN-CORE TABLE

File Definition	Original Values	New Values
01 BSP-TEMP-RECORD		
05 BSP-TEMP-RECORD-TYPE	PICTURE X.	
05 BSP-TEMP-RECORD-DATA		
10 Filler	PICTURE XXX.	
10 Filler	PICTURE X(510).	PICTURE X(850).
Max-values		
05 MAX-SPOP	PICTURE 999 VALUE 30.	VALUE 50.
Table entry		
01 VAL-SPOP-TABLE		
05 VAL-SPOP-HI-POS	PICTURE 999.	
05 VAL-SPOP-ENTRY	OCCURS 30.	OCCURS 50.
10 VAL-SPOP-ABBR	PICTURE X(4).	
10 VAL-SPOP-SEQ	PICTURE X(5).	
10 VAL-SPOP-VAL	PICTURE X(8).	

FILE FORMATS

There are two formats for the SFM-IA files. These are referred to as "external" and "internal." Input records prepared by the user with input coding forms (1) through (9) are in the external format. These records may be input through either the USER-MAIN-FILE or the USER-OPT-FILE which both accept records in the external format. Many of the records in the internal format contain essentially the same type of information but also have sort keys and other identifiers. These sort keys and other identifiers are in positions 1 through 37 with the actual data occurring in positions 38 through 80. The OLD-SFM-FILE, NEW-SFM-FILE, UPDATE-FILE and OBSERV-FILE are all internal files. Information passed from one module to another (such as the new enrollment data described on input form (18)) is passed in an OLD-SFM-FILE in internal format. The ADMISSIONS MODULE therefore does not actually write an external record such as (18) for subsequent input to the TRANSITION MODULE.

GENERAL NOTES

The comments in this section pertain to the majority of the programs and are collected here to avoid unnecessary repetition.

Abnormal Terminaton

When a "deferred fatal" error occurs a message is printed and processing continues until that phase of the program is completed. Control is then passed to MAIN-ABORT.

A "fatal" or "system" error passes control immediately to MAIN-ABORT. Here a record is written on the output file which will cause all succeeding programs to terminate after the first record is read. The terminating record contains the program number in KEY-2 and "ABORT" in KEY-3. KEY-4 contains the message number causing the run to abort. The DATA field contains the error message.

File Sequence

Every program expects the internal file to be sorted in ascending order on positions 01 through 37. As each record is read, the sort field is checked against the sort field of the previous record. If the file is not in the required sequence, a fatal error message is printed and the program terminates abnormally.

System Protection

As a program terminates normally, a record is written on the output file indicating this fact. The set of control records (record set identifier = 10) thus contains a history of the programs which have processed the file.

Each program contains in the data division a constant (REQ-PREV-PROG) which indicates the program which must have processed the file before it is considered valid input. If a record with this identifier is not found as the control records are processed, the program terminates abnormally with the message "FILE NOT PROCESSED BY REQ. PREV. PROGRAM."

This internal labeling convention allows the system to verify the correctness of its input files even if the user chooses to use the LABEL RECORDS OMITTED option.

SYSTEM MESSAGES

A number of messages are generated by the system to inform the user of possible errors or to simply report informational items. The formats in which these messages are produced are described below.

Run Summary

Each program produces a Run Summary report which lists the number of input records, the number of records written and other program counts.

Coded System Messages

There are four severity levels of coded system messages that may be generated. These severity levels are:

W = WARNING - This type of error is not significant. However, the user should determine the cause of the error to insure desired results.

I = INFORMATIONAL - This code does not represent an error but denotes information such as an input record.

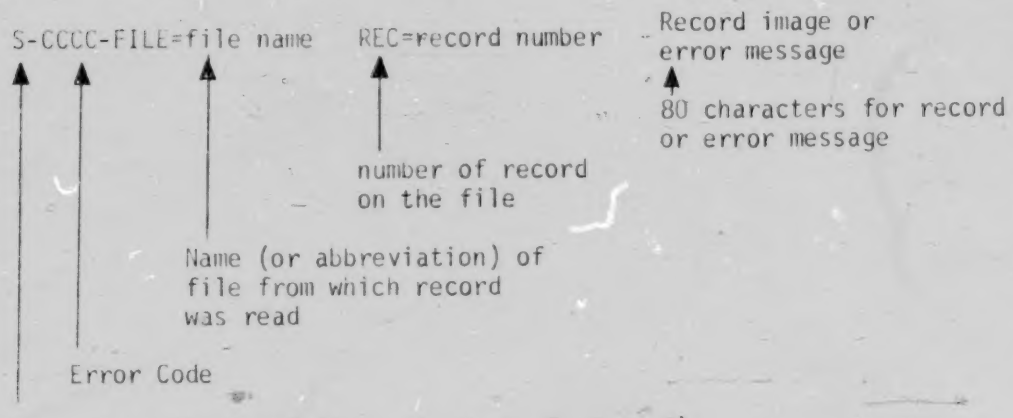
C = CONDITIONAL - This code represents a probable significant error. It may indicate omitted data or unusual calculated results.

F = FATAL - This code represents a significant error. It may indicate required data that have been omitted, unknown identifiers, non-numeric items, etc. The error is serious enough to cause immediate program termination. The presence of this code will cause suppression of remaining programs.

D = DEFERRED FATAL - This code represents a significant error. It may indicate required data that have been omitted, unknown identifiers, non-numeric items, etc. Additional processing is performed, however, to give the user additional information from the current program. As with fatal errors, execution of subsequent programs will be suppressed.

S = SYSTEM - This code represents a significant malfunction.

The general format for a coded system message is:


S-CCCC-FILE=file name
REC=record number
Record image or error message
80 characters for record or error message
number of record on the file
Name (or abbreviation) of file from which record was read
Error Code
Error Severity Level (i.e., I, W, C, F, D or S).

Some coded system messages are followed by a second line containing the record image or error message.

Table 2 contains a list of coded system messages.

Table 2

Coded System Messages

Severity	Code	Message/Meaning
S	X001	Control passed to DEFN-UPDT. Wrong data.
F	X002	Attempt to update definition-set. Not permitted.
F	X003	File out of sequence. Run terminated.
F	X004	Previous program terminated. Record which caused current program to terminate follows.
W	X005	File is empty.
S	X006	Host system error while trying to read.
S	X008	Attempt to read file at EOF.
S	X009	File open input. Attempt to open output.
S	X010	File open output. Attempt to open input.
W	X011	Error in (FILE-NAME)-DEFN-SET. (Probably a system error.)
D	X012	Too many categories defined. (Offending record follows.)
W	X013	Error in (FILE-NAME)-CNTL-SET. (Probably a system error.)
D	X014	First record is not -SFM-IA-. (Data follows.)
F	X015	File not processed by REQD. PREV. Program.
C	X016	End of file. More data expected.
W	X017	Source pop. not defined.
W	X018	Student program not defined.
W	X019	Student level not defined.
W	X020	Broad program not defined.
D	X021	Trouble with file. Paragraph name follows.
C	X023	Maximum student records read.
C	X024	Maximum student errors reached.
I	X025	Unknown category established. FILE-ID = CATEGORY, REC-NO.= ABBREV.

Severity	Code	Message/Meaning
C	X026	Invalid input record type.
D	X027	Invalid module. Must be HIST ADMS ENRL.
D	X028	Invalid option. Must be -RUN-.
D	X029	New iteration-ID cannot be blank.
D	X030	Term not specified. Must for ADMS ENRL.
W	X031	Lines per page out of range or not numeric.
W	X032	MAX-ERROR-COUNT zero or not numeric.
W	X033	MAX-STUDENT-RECORDS zero or not numeric.
D	X034	Invalid definition.
C	X035	Definition name is blank.
D	X036	Abbreviation is blank.
C	X037	Sequence blank. Abbreviation used.
D	X038	Term sequence is blank.
I	X040	Record read.
I	X041	Record written.
W	X042	Program not linked to broad program.
W	X043	Broad program to program link not made.
D	X044	Invalid module. Must be -HISTO.
D	X045	Invalid option. Must be -RPT-.
D	X046	Invalid report requested.
D	X047	Category abbreviation not defined.
D	X048	Neither -B- or -P- specified.
D	X049	Non-numeric value in numeric field.
D	X050	Neither -P- or -N- specified.
S	X051	Category not found. System error.

Severity	Code	Message/Meaning
S	X052	System failure. File advanced too far.
C	X053	Attempt to change title to spaces.
F	X054	Incorrect file passed to this program.
F	X055	Conflicting B/P specifications. Re-check input-data.
C	X057	-TERM- of data conflicts with -TERM- of iteration. Input data rejected.
D	X058	Bad SPOP on APOL record prevents B/P consistency check.
W	X059	Percentage value greater than 100 percent.
W	X060	Comment record sequence number not between 1 and 50.
D	X061	Conflicting SPP1, SPP2 data. Details in Program 60.
W	X062	Source Population did not have a -NAPL- record.

Percentage Totals

If participation and distribution percentage values (in the ADMISSIONS MODULE) and transition percentage values (in the TRANSITION MODULE) are not equal to one hundred percent, SFM60 and SFM85 (the report programs) flag these totals with an asterisk. The run summary for each program lists the total number of percentage totals so flagged and the most "deviant" percentage value.

Miscellaneous

Two other types of potential errors are reported in report programs SFM60 and SFM85.

ADMISSIONS MODULE program SFM60 may report that both SPP1 and SPP2 admissions data has been supplied for a Program/Level. The offending Program/Levels are also listed. This is a fatal error and SFM60 is then immediately terminated.

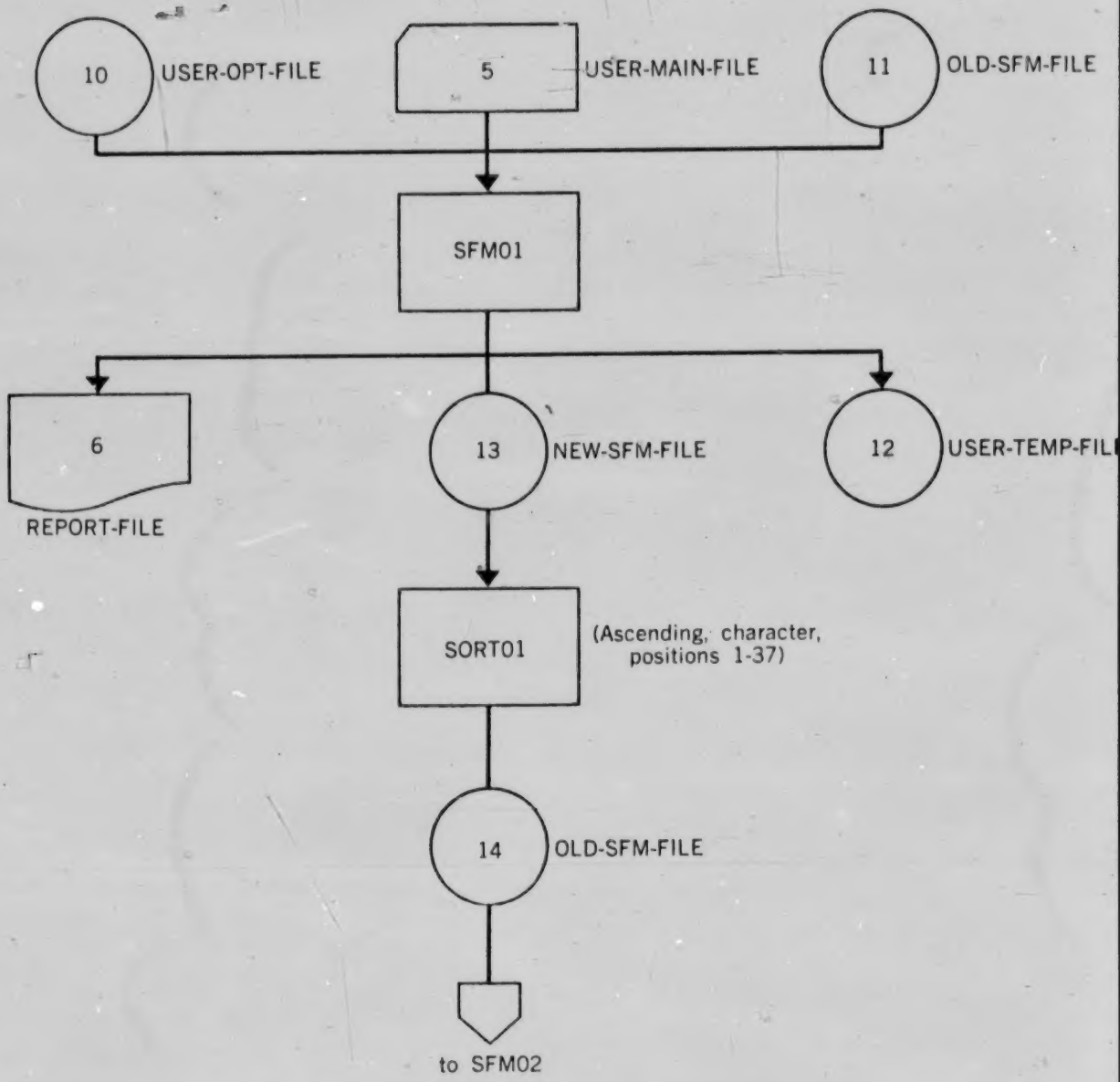
TRANSITION MODULE program SFM85 may report that transition data was not supplied for a Program/Level in which students were enrolled. The system automatically causes these students to continue in the same Program/Level in the next term.

Unlike other system messages, the information for these two messages is carried in files as comment records with sequence numbers greater than 50. (Comment record sequence numbers provided by the user via input form 2 must be between 1 and 50 inclusive.)

PROGRAM DOCUMENTATION

EDIT MODULE

Program Block Diagram
SFM01



PROGRAM INFORMATION

Program Name - SFM01

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program edits the control record (SFM-IA) and the user input records which describe the structure of the institution (INST, COMM, TITL, DEFN, BPCD, PROG, TERM). The other user input records are passed to program SFM02 via the USER-TEMP-FILE. These records may be input via either the USER-MAIN-FILE or the USER-OPT-FILE.

If an OLD-SFM-FILE has been indicated as present, that file is searched for the specified old iteration(s) and the required data is extracted.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
USER-MAIN-FILE	80	80	Omitted	Deleted
USER-OPT-FILE	80	80	Standard	Saved
OLD-SFM-FILE	80	3600	Standard	Saved

USER-MAIN-FILE must, at a minimum, contain the SFM-IA control record. The other user input records may be on USER-MAIN-FILE or on USER-OPT-FILE if that file is specified as being present on the SFM-IA record.

OLD-SFM-FILE will be used as the basis for creation of a new iteration containing data from the specified old iteration(s) modified by the data from the user input records.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
USER-TEMP-FILE	80	80	Standard	Passed to SFM02
NEW-SFM-FILE	80	3600	Standard	Passed to SORT01

REPORT-FILE contains a summary of processing done by SFM01. This includes a list of the data read from USER-MAIN-FILE.

USER-TEMP-FILE is used to pass to program SFM02 the user input records which must be matched against the institutional structure created by SFM01. These record types are: NAPL, SPP1, SPP2, APOL, DIST, BENR, NENR, TRAN.

NEW-SFM-FILE contains the institutional structure in the internal format. Additionally, it may contain data extracted from an old iteration.

PROGRAM PROCESSING NARRATIVE

The USER-MAIN-FILE is read to determine if the first record is the required control record (SFM-IA). If it is not or if certain key data elements are missing or invalid, a fatal error message is issued and the program terminates.

If the control record is determined to be valid, processing continues with the editing of the user input records on USER-MAIN-FILE. At end of file a check is made to see if USER-OPT-FILE is present. If it is present, additional input data is read from it.

INST, TITL and DEFN records result in creation of NEW-SFM-RECORDS which describe the institutional structure. BPCD and PROG records result in two sets of special records used to build the linkage between Broad Program Category and Student Program. The records are used by SFM02 to match Broad Programs and Programs and determine if any elements are missing.

NAPL, SPP1, SPP2, and APOL records are checked to see if they specify a "P" for distribution to student program. For each record of these three types that does specify a "P", a record is written which will alter an entry in the ABB-BPC-TABLE in SFM02 which has been preset to "B". This subset of records allows editing for consistency of distribution method.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
COPY-OLD-MSTR	This section copies selected records from the OLD-SFM-FILE if one has been specified as present.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE data to be written is in NEW-SFM-RECORD.
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PROCESS - USER	This overlayable section processes the USER-INPUT records read into USER-WORK-RECORD by USER-GET.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
USER-FILE-READ	This overlayable section opens, reads, closes the USER-MAIN-FILE if the optional file is indicated as present, the USER-OPT-FILE is opened and read at USER-MAIN-END. Both files are read into USER-WORK-RECORD.

INPUT SECTION

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

CONTROL RECORD—HISTORY MODULE

Required | History Module

PAGE ___ OF ___

DATE _____

1a

| Module | | | | Option | | | Iteration Out | | Iteration Name | | | |

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

CONTROL RECORD—ADMISSIONS MODULE

Required | Admissions Module

PAGE ____ OF ____

DATE ____

(1b)

Module	Option	Iteration Out	Term Abbrev.	Iteration Year (Optional)	Iteration Name
A D M S	R U N				
7 8 9 10	11 12 13	16 17	19 20 21 22	23 24	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Date	Optional Data File	Lines Per Page	Input Iteration ID
41 42 43 44 45 46 47 48	49	50 51	52 53

Sequence
73 74 75 76 77 78 79 80

40

COMMENTS

PURPOSE: This input specifies an execution of the ADMISSIONS MODULE.

ITERATION OUT: This data item identifies the set of data to be created and saved for use by the TRANSITION MODULE.

TERM ABBREV.: Term identifier which is combined with ITERATION OUT. Must correspond to one of the term abbreviations on input form (7).

ITERATION YEAR: Optional identifier which is used in report headings by programs that use the data created by this run.

OPTIONAL DATA FILE: Enter 'Y' if optional input data file is to be read.

LINES PER PAGE: Enter line per page (30-39) desired on reports. (Default—55)

INPUT ITER ID: Enter ID of previously run iteration that contains source population participation data, broad program category distribution data, etc. This may be data produced by the HISTORY MODULE or by a previous run of the ADMISSIONS MODULE. This data will be read from the OLD-SFM-FILE.

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

CONTROL RECORD—TRANSITION MODULE

Required | Transition Module

PAGE ___ OF ___

DATE _____

(1c)

Module	Option	Iteration Out	Term Abbrev.	Iteration Year (Optional)	Iteration Name
T R A N	R U N				
7 8 9 10	11 12 13	16 17	19 20 21 22	23 24	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Date	Optional Data File	Lines Per Page	Input Iteration ID's: New Enrollment	Beginning Enrollment	Transitions
41 42 43 44 45 46 47 48	49	50 51	52 53	54 55	56 57

Sequence

73 74 75 76 77 78 79 80

41

COMMENTS

PURPOSE: This input specifies an execution of the TRANSITION MODULE.

ITERATION OUT: This data item identifies the set of data to be created and saved for later use.

TERM ABBREV.: Term identifier which is combined with ITERATION OUT. Must correspond to one of the term abbreviations on input form (7).

ITERATION YEAR: Optional identifier which is used in report headings by programs that use the data created by this run.

OPTIONAL DATA FILE: Enter 'Y' if optional input data file is to be read.

LINES PER PAGE: Enter lines per page (30-39) desired on reports. (Default—55)

INPUT ITERATION ID'S: Enter ID's of previously run iterations that contain desired input data. New enrollments field specifies an output of ADMISSIONS MODULE. Beginning enrollment field refers to manually prepared data or to previous run of TRANSITION MODULE. Transitions field refers to HISTORY MODULE output or previous run of TRANSITION MODULE. This data will be read from the OLD-SFM-FILE.

RECORD IDENTIFIER

C	O	M	M
1	2	3	4

STUDENT FLOW MODEL

COMMENT RECORD

Optional | All Modules

PAGE ___ OF ___

DATE _____

(2)

Sequence Number

7	8

Comment

9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		

39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68		

Sequence

73	74	75	76	77	78	79	80	

42

COMMENTS

Sequence Number: The comment records will be sorted on the SEQUENCE NUMBER. If the SEQUENCE NUMBER is blank, the sorting sequence will be the order of input. Up to fifty comment records may be supplied. Sequence numbers must be between 1 and 50, inclusive.

Comment: Remarks entered in positions 9-68 apply to the iteration being created. These remarks will be printed preceding the reports produced by the system.

RECORD IDENTIFIER

I	N	S	T
1	2	3	4

STUDENT FLOW MODEL

INSTITUTION RECORD

Optional | All Modules

PAGE ____ OF ____

DATE _____

(3)

Institution Name

7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36

43

Sequence

73	74	75	76	77	78	79	80	

COMMENTS

Enter institution name (centered)

RECORD IDENTIFIER

T	I	T	L
1	2	3	4

STUDENT FLOW MODEL

TITLE RECORD

Optional | All Modules

PAGE ____ OF ____

DATE _____

(4)

Category (7 8 9 10)

Category Title (11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30)

Sequence (73 74 75 76 77 78 79 80)

44

COMMENTS

PURPOSE: This input provides optional titles for the categories shown below. If a title is not supplied for a category, the default title is used.

CATEGORY	Default Title
SPOP	SOURCE POPULATION
BPCD	BROAD PROGRAM
PROG	STUDENT PROGRAM
STLV	STUDENT LEVEL
NEWS	NEW STUDENTS
EXIT	EXITING STUDENTS

NOTE: In some instances these titles will be truncated to 12 characters.

RECORD IDENTIFIER

D	E	F	N
1	2	3	4

STUDENT FLOW MODEL

DEFINITION/CONVERSION RECORD

Required | All Modules

PAGE ____ OF ____

DATE _____

(5)

Category	Definition Name	Definition Abbreviation	Definition Sequence Value (Optional)
7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	27 28 29 30	31 32 33 34

Value On Student-History-File (used only for History Module)

35 36 37 38 39 40 41 42	43 44 45 46 47 48 49 50	51 52 53 54 55 56 57 58	59 60 61 62 63 64 65 66

Sequence

73 74 75 76 77 78 79 80

45

COMMENTS

PURPOSE: This input provides the system with names and abbreviations of the categories listed below, and for the HISTORY MODULE only, the values on the STUDENT-HISTORY-FILE that convert to each defined category. These labels are used by the system for linking and identifying data elements for calculating and/or reporting.

CATEGORY	DATA	MAXIMUM NUMBER*
SPOP	Source Population	900
STLV	Student Level	15
EXIT	Exiting Category	900

DEFINITION ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used to identify Source Populations, Student Levels, and Exiting Categories in the user data.

DEFINITION SEQUENCE VALUE: This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequence for each of the above data categories. If left blank, the abbreviation field will be used as the sequence value.

NOTE:
- Multiple DEFN records may be used to enter values assigned to any one Source Population, Student Level or Exiting Category.
- HISTORY MODULE only: If one of the value fields for a source population record contains "$S ELSE" (left justified) all source population elements on the STUDENT-HISTORY-FILE not otherwise defined will be assigned to the source population specified by the definition abbreviation. The same code may be used to assign otherwise undefined student level elements.

* Maximum number of file values for category when executing History Module.

RECORD IDENTIFIER

B	P	C	D
1	2	3	4

STUDENT FLOW MODEL

BROAD PROGRAM CATEGORY DEFINITION

Required | All Modules

PAGE ____ OF ____

DATE _____

(6)

Broad Program Category Name

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Broad Program Category Abbreviation

27 28 29 30

Broad Program Category Sequence Value (Optional)

32 33 34 35

Consists of Programs:

37 38 39 40 | 42 43 44 45 | 47 48 49 50 | 52 53 54 55

57 58 59 60 | 62 63 64 65 | 67 68 69 70

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This input provides the system with names and abbreviations for Broad Program Categories. These labels are used by the system for linking and identifying data elements for calculating and/or reporting.

BROAD PROGRAM CATEGORY ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used to identify Broad Programs in the user data.

BROAD PROGRAM CATEGORY SEQUENCE VALUE (OPTIONAL): This data item may be alphabetic or numeric. It is used to explicitly define the sorting sequence of the Broad Program Categories. If left blank, the abbreviation field will be used as the sequence value.

CONSISTS OF PROGRAMS: Enter the abbreviation for programs that are in the broad program category. Program abbreviations must be defined on coding form (7)

NOTE: Multiple BPCD records may be used to enter programs asigned to any one Broad Program Category.

RECORD IDENTIFIER

P	R	O	G
1	2	3	4

STUDENT FLOW MODEL

PROGRAM TITLE / CONVERSION RECORD

Required | All Modules

PAGE _____

DATE _____

(1)

Program Name

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Program Abbreviation

27 28 29 30

Program Sequence Value (Optional)

31 32 33 34

Value on Student-History-File (use for Historly Module only)

35 36 37 38 39 40 41 42

43 44 45 46 47 48 49 50

51 52 53 54 55 56 57 58

59 60 61 62 63 64 65 66

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This input provides the system with names and abbreviations for program titles. These labels are used by the system for linking and identifying data elements for calculating and/or reporting.

PROGRAM ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used when identifying programs within the user data.

PROGRAM SEQUENCE VALUE (OPTIONAL): This data item may be alphabetic or numeric. It is used to explicity define the sorting seqence of the programs. If left blank, the abbreviation field will be used as the sequence value.

NOTE:
- Multiple PROG records may be used to enter VALUES ON STUDENT-HISTORY-FILE for any one program.
- HISTORY MODULE only: If one of the value fields contains "$$ ELSE" (left justified) all program elements on the STUDENT-HISTORY-FILE not otherwise defined will be assigned to the program on this record.

RECORD IDENTIFIER

T	E	R	M
1	2	3	4

STUDENT FLOW MODEL

TERM DEFINITION/CONVERSION RECORD

Required | All Modules

PAGE ____ OF ____

DATE _____

(8)

Term Name

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Term Abbreviation

27 28 29 30

Sequence Number

34

Term Values on Student-History-File (use for History Module only)

35 36 37 | 39 40 41 | 43 44 45 | 47 48 49 | 51 52 53

55 56 57 | 59 60 61 | 63 64 65 | 67 68 69

Sequence

73 74 75 76 77 78 79 80

48

COMMENTS

PURPOSE: This input provides the system with the names and abbreviations for the terms included in the academic year.

TERM ABBREVIATION: This data item may be alphabetic or numeric. It supplies the system with the codes which will be used by the system when identifying terms within the user data.

TERM SEQUENCE: This data item specifies the order in which the defined terms occur during the period of time modeled. The term should be numbered in ascending order within the academic year. This item must be numeric and values supplied must be consecutive. Value entered must be 1, 2, 3, or 4.

EXAMPLE:

TERM NAME	TERM ABBREVIATION	TERM SEQUENCE
Fall	FALL	1
Spring	SP	2

VALUES ON STUDENT-HISTORY-FILE: These are the year/term identifiers which appear in positions 16-18 of the student records. Only those records which have identifiers which match those specified on TERM cards will be recognized.

RECORD IDENTIFIER

N	A	P	L
1	2	3	4

STUDENT FLOW MODEL

NEW APPLICANT ESTIMATES

Required if (13) is Used

Admissions Module

PAGE ___ OF ___

DATE _____

(12)

Term Abbreviation	Source Population Abbreviation	Estimated Number of Applicants	Source Population Abbreviation	Estimated Number of Applicants
7 8 9 10	11 12 13 14	15 16 17 18 19 20	21 22 23 24	25 26 27 28 29 30
	31 32 33 34	35 36 37 38 39 40	41 42 43 44	45 46 47 48 49 50
	51 52 53 54	55 56 57 58 59 60	61 62 63 64	65 66 67 68 69 70

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item provides the system with the estimated number of new applicants from each Source Population. For a given term and Source Population either (12) and (13) or else (14) is used.

TERM: This data item must be consistent with the term being executed as specified on the control record SFM-IA.

ESTIMATED NUMBER OF APPLICANTS: Must be a right-justified numeric value. More than one record may be supplied if necessary.

RECORD IDENTIFIER

S	P	P	1
1	2	3	4

STUDENT FLOW MODEL

SOURCE POPULATION PARTICIPATION – RECORD 1

Required if (12) is Used

Admissions Module

PAGE ____ OF ____

DATE ____

(13)

Term Abbreviation: 7 8 9 10

Source Population Abbreviation: 11 12 13 14

Eliminate Existing Data: 15

Specify Distribution To BPC or Program: B/P 16

Students Go To:

BPC or Program Abbreviation	Student Level Abbreviation	Percentage	Sequence
17 18 19 20	21 22 23 24	25 26 27 28 29	
30 31 32 33	34 35 36 37	38 39 40 41 42	
43 44 45 46	47 48 49 50	51 52 53 54 55	
56 57 58 59	60 61 62 63	64 65 66 67 68	73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item describes the Broad Program Categories (or Programs) that students from a Source Population apply to for a given term.

TERM: This data item must be consistent with the term being executed as specified on the control record SFM-1A.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data for this Source Population and term.

SPECIFY DISTRIBUTION TO PBC OR PROGRAM: Enter: 'B'—Distribution to Broad Program Categories
'P'—Distribution to Programs

NOTE:

- For a given term and Source Population all students must go either to Broad Program Categories or else directly to Programs.
- See form (12) which is used in conjunction with this form.
- The sum of the percentages for a source population and term must total 100.00%.
- This record is generated by the HISTORY MODULE.

APRIL 1974

RECORD IDENTIFIER

S	P	P	2
1	2	3	4

STUDENT FLOW MODEL

SOURCE POPULATION PARTICIPATION–Record 2

Not Required if (12) & (13) are Used | Admissions Module

PAGE ____ OF ____

DATE _____

(14)

Term Abbreviation: [ ][ ][ ][ ] 7 8 9 10

Source Population Abbreviation: [ ][ ][ ][ ] 11 12 13 14

Eliminate Existing Data: [ ] 15

Specify Distribuation To BPC or Program: B/P [ ] 16

Students Go To:

BPC or Program Abbreviation	Student Level Abbreviation	Number
[ ][ ][ ][ ] 17 18 19 20	[ ][ ][ ][ ] 21 22 23 24	[ ][ ][ ][ ][ ] 25 26 27 28 29
[ ][ ][ ][ ] 30 31 32 33	[ ][ ][ ][ ] 34 35 36 37	[ ][ ][ ][ ][ ] 38 39 40 41 42
[ ][ ][ ][ ] 43 44 45 46	[ ][ ][ ][ ] 47 48 49 50	[ ][ ][ ][ ][ ] 51 52 53 54 55
[ ][ ][ ][ ] 56 57 58 59	[ ][ ][ ][ ] 60 61 62 63	[ ][ ][ ][ ][ ] 64 65 66 67 68

Sequence: [ ][ ][ ][ ][ ][ ][ ][ ] 73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This record establishes fixed estimates of new applicants from a Source Population for each Broad Program Category or Program. For a given term and source population either (12) and (13) or else (14) is used.

TERM: This data item must be consistent with the term being executed as specified on the control record.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data for this source population and term.

SPECIFY DISTRIBUTON TO BPC OR PROGRAM: Enter: 'B'—Distribution to Broad Program Categories.
'P'—Distribution to Programs.

NUMBER: Must be right-justified.

NOTE:
- For a given term and Source Population, all students must go either to Broad Program Categories or else directly to Programs.

RECORD IDENTIFIER

A	P	O	L
1	2	3	4

STUDENT FLOW MODEL

ADMISSIONS POLICY/NO SHOW RATE

Optional | Admissions Module

PAGE ____ OF ____

DATE _____

(15)

Term Abbreviation	Source Population Abbreviation	Specify BPC or Program	Broad Program or Program Abbreviation	Student Level Abbreviation	Specify % or Number	Maximum Percentage or Number To Be Admitted	No Show Percentage
7 8 9 10	11 12 13 14	B/P 15	16 17 18 19	20 21 22 23	P/N 24	25 26 27 28 29 30	31 32 33 34
			35 36 37 38	39 40 41 42	43	44 45 46 47 48 49	50 51 52 53
			54 55 56 57	58 59 60 61	62	63 64 65 66 67 68	69 70 71 72

Sequence

73 74 75 76 77 78 79 80

52 53

COMMENTS

PURPOSE: This data item specifies the percentage of maximum number of students to be admitted from each Source Population and term.

TERM: This data item must be consistent with the term being executed as specified on the control record.

SPECIFY BPC OR PROGRAM: This data item must be identical to the distribution specified for the Source Population Subset on input forms (12) and (13).
'B'—Distribution to Broad Program Categories 'P'—Distribution to Programs (Defaults to 'P')

TO BE ADMITTED:
SPECIFY % OR NUMBER: 'P'—Percentage to be admitted 'N'—Number to be admitted

NOTE:
- Enter *either* a percentage or a maximum number to be admitted to a given student level within a Broad Program Category or Program.
- Default admission percentage is 100%.
- Default no show percentage is 0%.

RECORD IDENTIFIER

D	I	S	T
1	2	3	4

STUDENT FLOW MODEL

DISTRIBUTION FROM BROAD PROGRAM CATEGORIES

Optional* | Admissions Module

PAGE ____ OF ____

DATE _____

(16)

Term Abbreviation	Broad Program Category Abbreviation	Student Level Abbreviation	Eliminate Existing Data	Students To Go: Program Abbreviation	Percentage	Program Abbreviation	Percentage
7 8 9 10	11 12 13 14	15 16 17 18	19	20 21 22 23	24 25 26 27	28 29 30 31	32 33 34 35
				36 37 38 39	40 41 42 43	44 45 46 47	48 49 50 51
				52 54 54 55	56 57 58 59	60 61 62 63	64 65 66 67

Sequence

73 74 75 76 77 78 79 80

53

COMMENTS

PURPOSE: This data item specifies the distribution of Students from a Broad Program Category and level to Programs.

TERM: This data item must be consistent with the term being executed as specified on the control record.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data (from old iteration or history module) for the Broad Program Category and term specified on this record.

NOTE:
- The sum of the percentages for a Broad Category and term must total 100%.
- This record is generated by the HISTORY MODULE.

*Required if (12) or (13) specify distribution from a source Population to Broad Program Categories.

RECORD IDENTIFIER

B	E	N	R
1	2	3	4

STUDENT FLOW MODEL

BEGINNING ENROLLMENT RECORD

Optional | Transition Module

PAGE ____ OF ____

DATE _____

(17)

Term Abbreviation	Program Abbreviation	Student Level Abbreviation	Number
7 8 9 10	11 12 13 14	15 16 17 18	19 20 21 22 23
	24 25 26 27	28 29 30 31	32 33 34 35 36
	37 38 39 40	41 42 43 44	45 46 47 48 49
	50 51 52 53	54 55 56 57	58 59 60 61 62

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item specifies the beginning enrollment for a term, in a Program and student level. This input is typically used only for the first term to be processed.

TERM: This data item must be consistent with the term being executed as specified on the control record.

NUMBER: Must be right-justified.

NOTE:
- If beginning enrollment in a program and student level for a term is not specified, a value of zero is used.
- While this input is optional, most users of the system will require beginning enrollment values to be entered.

RECORD IDENTIFIER

N	E	N	R
1	2	3	4

STUDENT FLOW MODEL

NEW ENROLLEES RECORD

Optional | Transition Module

PAGE ___ OF ___

DATE _____

(18)

Term Abbreviation	Program Abbreviation	Student Level Abbreviation	Number
7 8 9 10	11 12 13 14	15 16 17 18	19 20 21 22 23
	24 25 26 27	28 29 30 31	32 33 34 35 36
	37 38 39 40	41 42 43 44	45 46 47 48 49
	50 51 52 53	54 55 56 57	58 59 60 61 62

Sequence

73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item specifies the number of new enrollees at the beginning of a term for a Program and Student Level.

TERM: This data item must be consistent with the term being executed as specified on the control record.

NUMBER: Must be right-justified.

NOTE:
- If new enrollees in a program and student level for a term is not specified, a value of zero is used.
- This record is generated by the ADMISSIONS MODULE.

RECORD IDENTIFIER

T	R	A	N
1	2	3	4

STUDENT FLOW MODEL

PROGRAM/STUDENT LEVEL TRANSITION PATTERN

Required | Transition Module

PAGE ____ OF ____

DATE ____

(19)

Term Abbreviation	Program Abbreviation	Student Level	Eliminating Existing Data
7 8 9 10	11 12 13 14	15 16 17 18	19

Students Go To:

Program or Exiting Category *	Student Level	Percentage	Program or Exiting Category *	Student Level	Percentage
20 21 22 23	24 25 26 27	28 29 30 31	32 33 34 35	36 37 38 39	40 41 42 43
44 45 46 47	48 49 50 51	52 53 54 55	56 57 58 59	60 61 62 63	64 65 66 67

Sequence: 73 74 75 76 77 78 79 80

COMMENTS

PURPOSE: This data item specifies the transition probabilities from programs and student levels in one term to programs and student levels in the next term or to exiting categories.

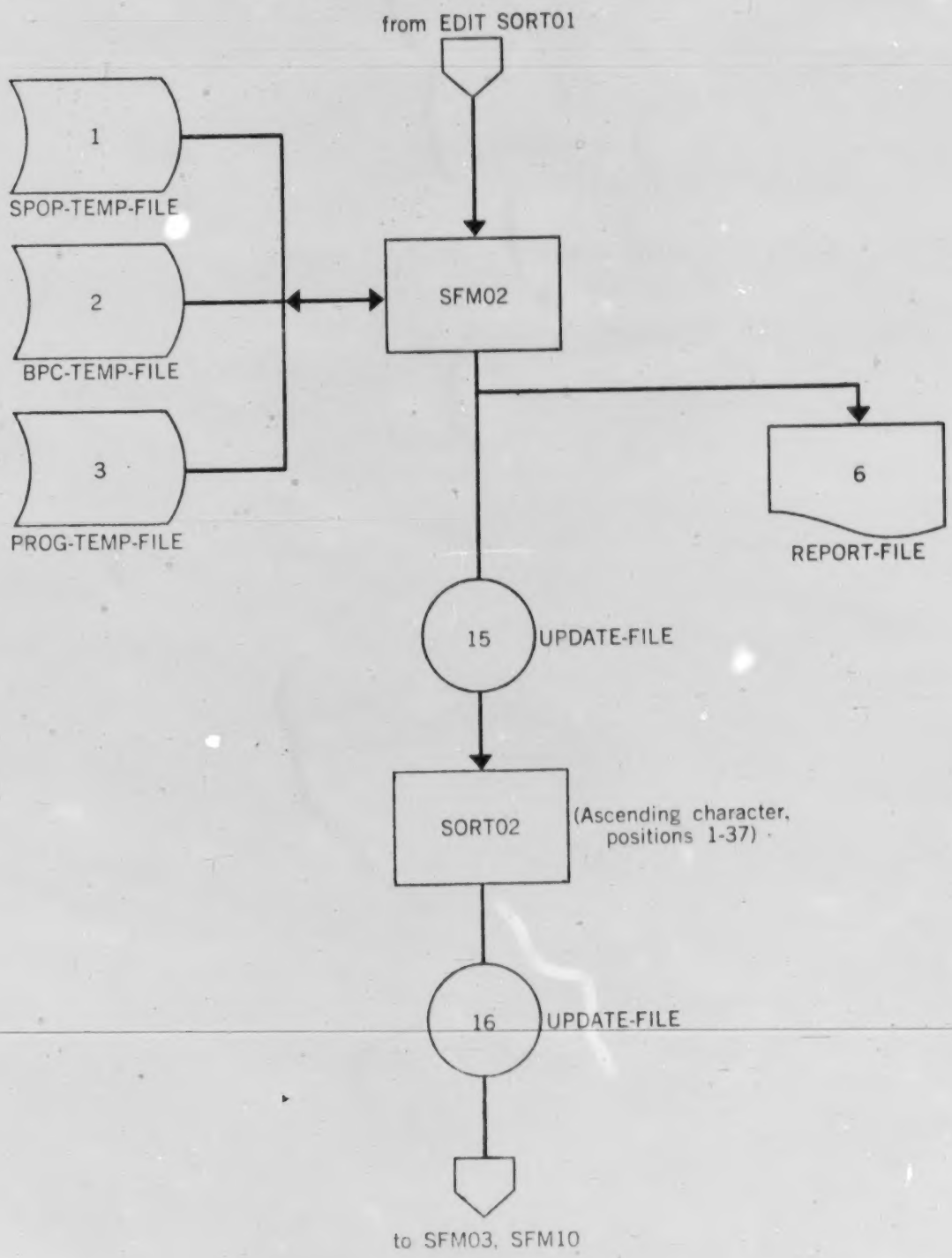
TERM: This data item must be consistent with the term being executed as specified on the control record.

ELIMINATE EXISTING DATA: Enter 'Y' to delete all previous data for the Term, Program and Student Level specified on this record.

NOTE:
- The sum of the percentages for a Term, Program and Student Level must total 100%.
- This record is generated by the HISTORY MODULE.

* Student Level is ignored for an exciting category.

Program Block Diagram
SFM02



PROGRAM INFORMATION

Program Name - SFM02

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program edits the user input records passed via USER-TEMP-FILE. These record types are NAPL, SPP1, SPP2, APOL, DIST, BENR, NENR, and TRAN. Before this editing can be performed, the linkages between broad program categories and programs must be completed.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
USER-TEMP-FILE	80	80	Standard	Deleted
OLD-SFM-FILE	80	160	Standard	Deleted
SPOP-TEMP-FILE	783	783	Standard	Deleted (work)
BPC-TEMP-FILE	1023	1023	Standard	Deleted (work)
PROG-TEMP-FILE	1023	1023	Standard	Deleted (work)

USER-TEMP-FILE contains user input records which cannot be edited until the complete structure of the institution is defined. The record types passed from SFM01 are NAPL, SPP1, SPP2, APOL, DIST, BENR, NENR, and TRAN.

OLD-SFM-FILE contains the structure of the institution in the internal format. Additional records enable the program to establish the linkage between broad program category and program.

SPOP-TEMP-FILE is the ABB-SPOP-TABLE overflow file. This file will not be used unless the in-core table overflows. Created and used only by SFM02.

BPC-TEMP-FILE is the ABB-BPC-TABLE overflow file. This file will not be used unless the in-core table overflows. Created and used only by SFM02.

PROG-TEMP-FILE is the ABB-PROG-TABLE overflow file. This file will not be used unless the in-core table overflows. Created and used only by SFM02.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
UPDATE-FILE	80	160	Standard	Passed to
SPOP-TEMP-FILE	783	783	Standard	Deleted (work)
BPC-TEMP-FILE	1023	1023	Standard	Deleted (work)
PROG-TEMP-FILE	1023	1023	Standard	Deleted (work)

REPORT-FILE contains the run summary report for SFM 02 and any error messages that may have been generated by this program. These messages may indicate that the broad program to program linkages have not been satisfactorily established. Informational messages are generated if the "unknown" category option ($$ ELSE) has been used.

UPDATE-FILE contains records copied from OLD-SFM-FILE (structure: data from previous iteration) and records created by SFM02 from the user input records read from USER-TEMP-FILE. These may be new data or updates to the old iteration data.

USER-TEMP-FILE contains user input records which cannot be edited until the complete structure of the institution is defined. The record types passed from SFM01 are NAPL, SPP1, SPP2, APOL, DIST, BENR, NENR, and TRAN.

OLD-SFM-FILE contains the structure of the institution in the internal format. Additional records enable the program to establish the linkage between broad program category and program.

SPOP-TEMP-FILE is the ABB-SPOP-TABLE overflow file. This file will not be used unless the in-core table overflows. Created and used only by SFM02.

BPC-TEMP-FILE is the ABB-BPC-TABLE overflow file. This file will not be used unless the in-core table overflows. Created and used only by SFM02.

PROG-TEMP-FILE is the ABB-PROG-TABLE overflow file. This file will not be used unless the in-core table overflows. Created and used only by SFM02.

PROGRAM PROCESSING NARRATIVE

The control record portion of the UPDATE-FILE is read first to obtain system control information. Type "15" records are then read to build a table of Broad Program Category to program links. Any program not explicitely linked to a Broad Program Categgry by the user is linked to an "Undefined BPC" category. Abbreviation tables are then built for the remaining categories (SPOP, BPC, STLV and TERM) from definitionai records in the OLD-SFM-FILE. User input records passed via the USER-TEMP-FILE are then read and incorporated into the definition of the institution.

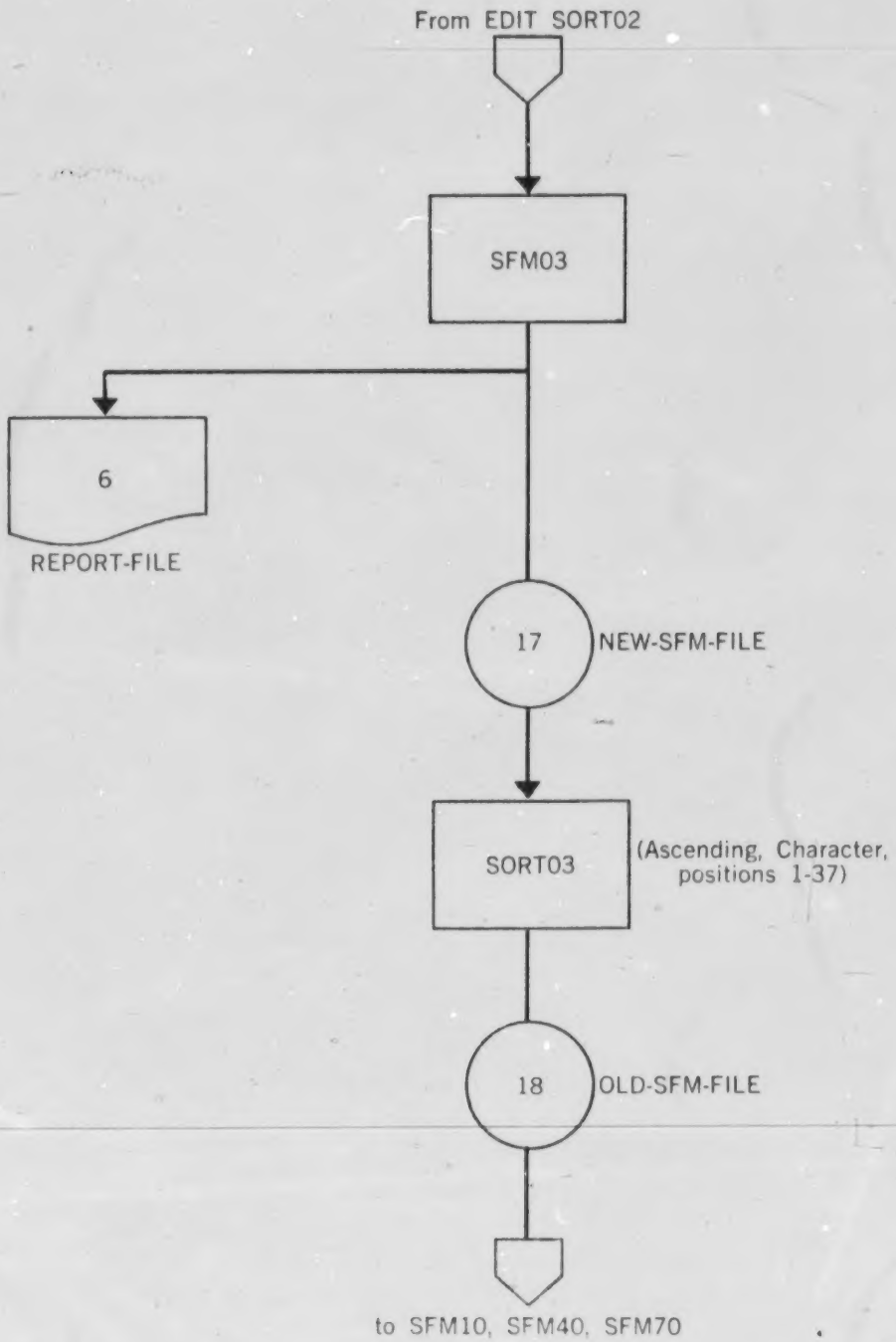
PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
BROAD-PROGRAM-SAVE	This overlayable section builds the ABB-BPC-TABLE from the BPC-PROG-RCDS (SET-IDENT = 15). This table is used by -PROG-MATCH- to establish the BPC-TO-PROG linkage. The PBC-PROG-RCDS are in PROG-ABB order to facilitate the search and match operations. The ABB-BPC-TABLE is used later to hold the DEFN-BPC data, (SET-IDENT = 20, KEY-1 = 50). This time in BPC-ABB order.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
COPY-FILE	This section copies OLD-SFM-FILE to UPDATE-FILE.
DEFINITION-SAVE	This overlayable section saves the definitions of institution, terms, student levels, source populations, broad program categories, programs. The TEMP files will be used if the internal tables become full.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PROCESS-USER	This overlayable section processes the following user record types copied onto USER-TEMP-FILE by SFM01. For ADMISSIONS MODULE - SPP1 SPP2 NAPL APOL DIST For TRANSITION MODULE - BENR NENR TRAN
PROGRAM-MATCH	This overlayable section matches program abbreviations against the BPC-PROG-LINKS stored in ABB-BPC-TABLE. When a link is used it is marked (-L-) so that it will not be used again. Unused links are logged as errors. Linked programs are entered into ABB-PROG-TABLE and the DEFN-PROG records are written to UPDT-FILE.

REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
UPDATE-WRITE	This overlayable section opens, writes the UPDATE-FILE.
USER-TEMP-GET	This section reads the USER-TEMP-FILE.
TEMP-FILE-LOGIC	This overlayable section performs all input/output operations for the BPC-TEMP-FILE, SPOP-TEMP-FILE and PROG-TEMP-FILE.
SRCH-LOGIC	Overlayable section performs search for BPC, SPOP, PROG, STLV and TERM values. Both in-core tables and temporary overflow files for the first three categories are searched.

Program Block Diagram
SFM03



PROGRAM INFORMATION

Program Name	-	SFM03
Date Written	-	May, 1974
Computer Language	-	ANS COBOL

PROGRAM PURPOSE

This program replaces date values in UPDATE-FILE records as specified by the value of UPDT-UPDT-KEY. All other records are copied to NEW-SFM-FILE.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT CLOSE
UPDATE-FILE	80	3600	Standard	Deleted

UPDATE-FILE contains the definition of the structure of the institution, new data values processed by SFM02, and any data copies from previous iterations by SFM01.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
NEW-SFM-FILE	80	3600	Standard	Passed to: SFM10 SFM40 SFM70

REPORT-FILE contains the run summary report from program SFM03.

NEW-SFM-FILE contains the updated data records along with the institutional structure information.

PROGRAM PROCESSING NARRATIVE

The sort key UPDT-KEY field of each record are examined to identify data to be deleted. Values in the UPDT-KEY field and their meaning are:

10 delete all previous data of this type for records with "matching" sort key fields (positions 1-35).

50 this is "previous data" i.e., data from a previous iteration.

60 this is update information for records with identical sort key fields.

Delete records (with an UPDT-KEY value of '10') may have asterisks in the sort key fields that are used as a mask and effectively match any value in another record. After encountering a delete record, following type '50' records are deleted until non-matching sort key fields are found. Non-blank characters in a type '60' record replace corresponding characters on a preceeding '50' or '60' record with matching sort key fields. (For a comment input record - input form 2 - both blank and non-blank characters are used for replacement.)

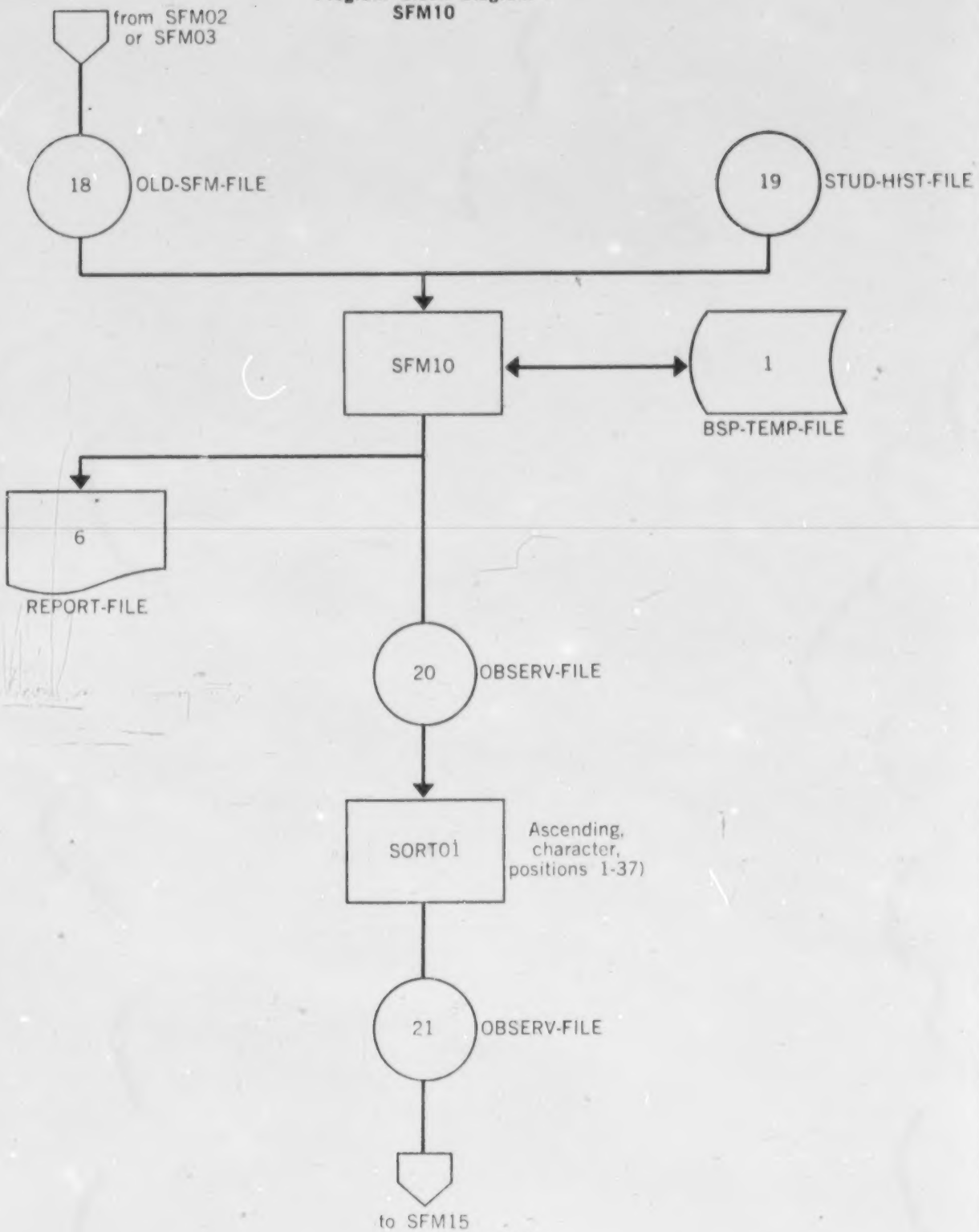
PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE. Data to be written is in WORK-RECORD.
PROCESS-UPDT-FILE	This section processes the UPDATE-FILE. The following codes in UPDT-KEY are recognized: 10 - delete all records for which col. 1-35 match this record and col. 36-37 = 50 50 - record was copied from OLD-MASTER-FILE or was created by this run 60 - insert non-blank characters into previous 50 record (col. 1-35 must match) New SFM-RECORD is written from WORK-RECORD.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
UPDATE-READ	This overlayable section opens, reads, sequence checks, and closes the UPDATE-FILE.

HISTORY MODULE

Program Block Diagram
SFM10



PROGRAM INFORMATION

Program Name - SFM10

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program processes a file of records which describe the progression of students through the institution. The specific terms of data to be examined are defined on the TERM records input to 01. All other terms of data are bypassed.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	800	Standard	Deleted
STUD-HIST-FILE	53	2385	Standard	Saved
BSP-TEMP-FILE	1302	1302	Standard	Deleted (work)

OLD-SFM-FILE contains the control and definition information necessary to process STUD-HIST-FILE. The definition data is in the form of table entries which are stored by the program.

STUD-HIST-FILE contains the records which show student progression through the institution. This fill may be in any sequence.

The BSP-TEMP-FILE contains overflow records from the VAL-SPOP-TABLE and the VAL-PROG-TABLE. It is created and used only by SFM10.

NOTE: It is highly recommended that the in-core tables be enlarged for this program rather than allow the temporary files to be used. This will noticeably reduce the execution time of this program.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
OBSERV-FILE	80	800	Standard	Passed to SFM15
BSP-TEMP-FILE	1302	1302	Standard	Deleted (work)

REPORT-FILE contains the run summary report for SFM10. If any of the "$$ ELSE" options have been selected, the number of times each option was used is reported. Any student records with unmatched categories are listed unless the "STUDENT RECORD ERROR FLAG" (SFM-IA record) was set to "N".

BSP-TEMP-FILE contains overflow records from the VAL-SPOP-TABLE and the VAL-PROG-TABLE. It is created and used only by SFM10.

OBSERV-FILE contains all the information from OLD-SFM-FILE plus observation records generated by SFM10.

PROGRAM PROCESSING NARRATIVE

SFM10 processes the control and definition records from OLD-SFM-FILE building the definition tables. Each table entry represents a value which the user has specified on the definition cards in the fields marked "For History Module only." The values on the student records are matched against the table entries. If no match is found, the record is rejected.

The exception to this occurs when the "unknown" category option has been specified. In this case, an otherwise unmatched value will be mapped into the unknown category. This option is valid for source population, student program and student level.

It is possible to specify a maximum number of student records to process. This option is particularly useful when testing a new set of control records or a new STUD-HIST-FILE input file. For a STUD-HIST-FILE record to be included in the analysis the value in the term field must match a term value supplied on input form 7. (For a CONTINUE record the Source Term field must match.) The Destination Term field is not compared with input form 7 values. Additionally, the user may specify some maximum number of errors (records with unmatched values) for the run. Records counted into the "unknown" categories are not tallied as errors.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
COPY-FILE	This section copies OLD-SFM-FILE to OBSERV-FILE.
DEFINITION-SAVE	This overlayable section saves the definitions of institution, terms, student levels, source populations, broad program categories, programs. The TEMP files will be used if the internal tables become full.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
OBSERV-WRITE	This overlayable section opens, writes the OBSERV-FILE.
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PROCESS-STUDENTS	This overlayable section processes the student records on STUD-HIST-FILE. This routine calls SRCH-TABLES.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
BPC-SPOP-PROG-IO	This overlayable section performs all I/O operations for the BSP-TEMP-FILE.
SRCH-TABLES	Overlayable section sets up appropriate flags and values for a search of the in-core or overflow tables.

SRCH-FOR-VALUE-LOGIC	Overlayable section gets the correct table block in-core for a table search (or determines that the value sought is not in the tables). Once the appropriate block is in-core a binary search is performed on the in-core table.
STUDENT-READ	This overlayable section opens, reads, closes the STUD-HIST-FILE.

The Student History File

The STUD-HIST-FILE contains the largest amount of input data for the HISTORY MODULE. Three types of records describe a student entering the institution, continuing in the institution from one term to the next, or a student exiting from the institution. The formats of these three record types are shown as input forms 9, 10 and 11 on the next three pages.

INPUT SECTION

STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Entering Student

History Module

PAGE ____ OF ____

DATE _____

(9)

Student ID
1 2 3 4 5 6 7 8 9 10

E N T E R
11 12 13 14 15

Term Student Enters
16 17 18

Source Population
19 20 21 22 23 24 25 26

Program Entered
38 39 40 41 42 43 44 45

Student Level Entered
46 47 48 49 50 51 52 53

83

COMMENTS

PURPOSE: This input provides an historic observation of a newly enrolled student entering the institution.

STUDENT ID: Enter alphanumeric student identification.

TERM STUDENT ENTERS: Identify term in which student entered the institution. Entry must correspond to a term value provided on input form (8).

SOURCE POPULATION: Identify source population from which student came. Entry must correspond to one of the source population values provided on input form (5).

PROGRAM ENTERED: Identify program and student level that student enrolled in. Program entry must correspond to a value provided on input form (7).

STUDENT LEVEL ENTERED: Student level entry must correspond to value provided on input form (5).

STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Continuing Student

History Module

PAGE ___ OF ___

DATE _____

(10)

Student ID
1 2 3 4 5 6 7 8 9 10

C O N T
11 12 13 14 15

First Term of Observation
16 17 18

Program in First Term
19 20 21 22 23 24 25 26

Student Level In First Term
27 28 29 30 31 32 33 34

Second Term of Observation
35 36 37

Program in Second Term
38 39 40 41 42 43 44 45

Student Level in Second Term
46 47 48 49 50 51 52 53

84

COMMENTS

PURPOSE: This input provides an historical observation of a student continuing from one term to the next.

STUDENT ID: Enter alphanumeric student identification.

FIRST TERM OF OBSERVATION: Identify term in which first observation is made. Both term entries on this input must correspond to a term value provided on input form (8).

PROGRAM IN FIRST TERM: Identify program and student level that student was in during first term. Entries for program and student level must correspond to values provided on input forms (7) and (5) respectively.

STUDENT LEVEL IN FIRST TERM:

SECOND TERM OF OBSERVATION: Identify term in which second observation is made.

PROGRAM IN SECOND TERM:

STUDENT LEVEL IN SECOND TERM: Identify program and student level that student was in during second term.

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STUDENT FLOW MODEL

STUDENT HISTORY RECORD—Exiting Student

History Module

PAGE ____ OF ____

DATE _____

(11)

Student ID
1 2 3 4 5 6 7 8 9 10

E X I T
11 12 13 14 15

Term That Student Exits
16 17 18

Program Left
19 20 21 22 23 24 25 26

Student Level Left
27 28 29 30 31 32 33 34

Exiting Category
38 39 40 41 42 43 44 45

85

COMMENTS

PURPOSE: This input provides an historic observation of a student leaving the institution.

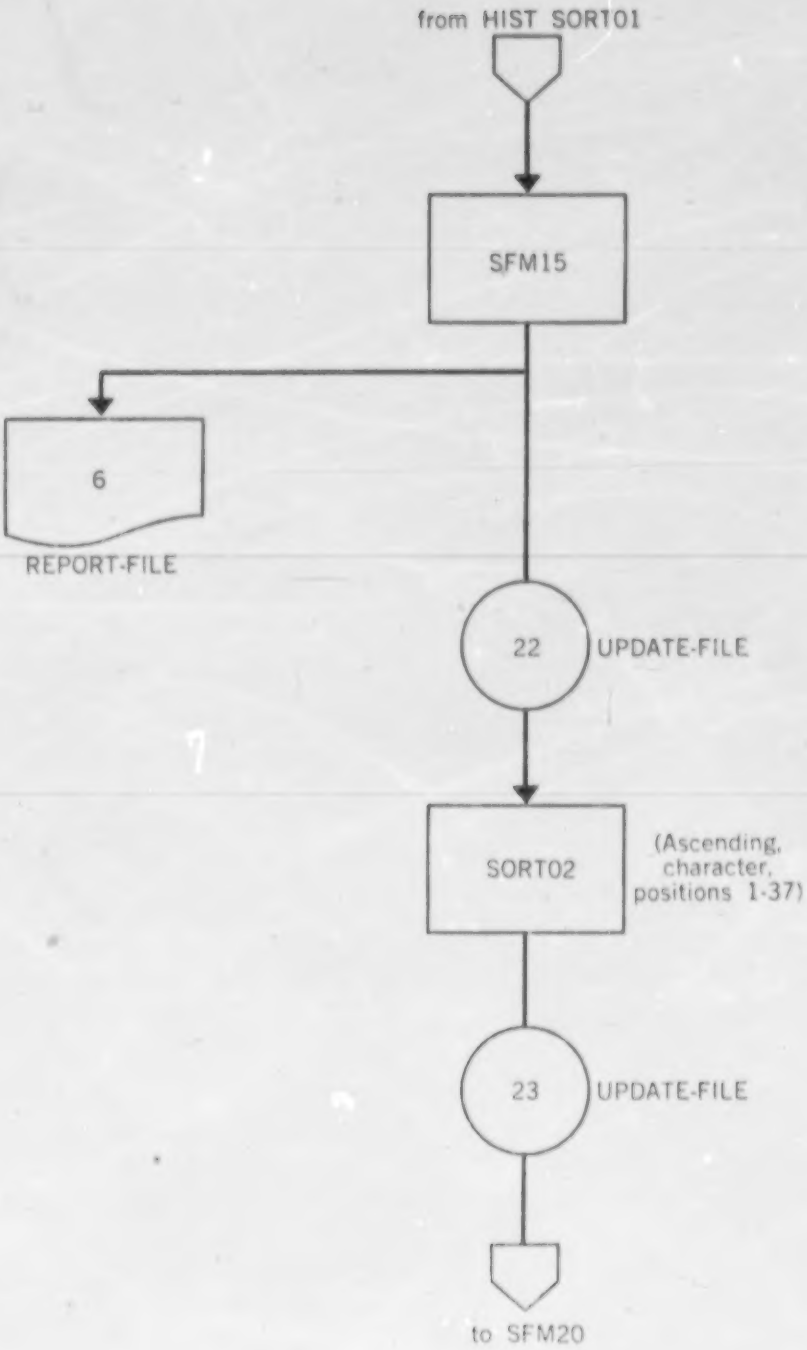
STUDENT ID: Enter alphanumeric student identification.

TERM THAT STUDENT EXITS: Enter abbreviation for the last term that student was enrolled. Entry must correspond to a term value provided on input form (8).

PROGRAM LEFT:
STUDENT LEVEL LEFT: Enter program and student level in which student was enrolled in "Term that student EXITS".

EXITING CATEGORY: Enter exiting category that student entered. Entry must correspond to an exiting value provided on input form (5).

Program Block Diagram
SFM15



PROGRAM INFORMATION

Program Name - SFM15

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program tallies the observation records produced by SFM10. The UPDATE-FILE contains both summary and detail records from which the distribution and transition matrices are calculated.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OBSERV-FILE	80	3600	Standard	Deleted

OBSERV-FILE contains the structure and definition data records generated by previous programs (SFM01 and SFM02). The major portion of the file consists of observation records prepared by SFM10.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
UPDATE-FILE	80	3600	Standard	Passed to SFM20

REPORT-FILE contains the run summary report for SFM15.

UPDATE-FILE contains the control and definition records copied from OBSERV-FILE. The new records added are summary and detail records by category and level.

PROGRAM PROCESSING NARRATIVE

This program summarizes the observation records produced by SFM10. The total records are written out with lower sort keys so that the divisors will appear first to SFM20. The general types of records produced are:

1 source population participation - source population to broad program category

2 source population distribution - source population to program

3 distribution - broad program category to program

4 transition - program to program

5 transition - broad program category to broad program category

6 source of students - by program

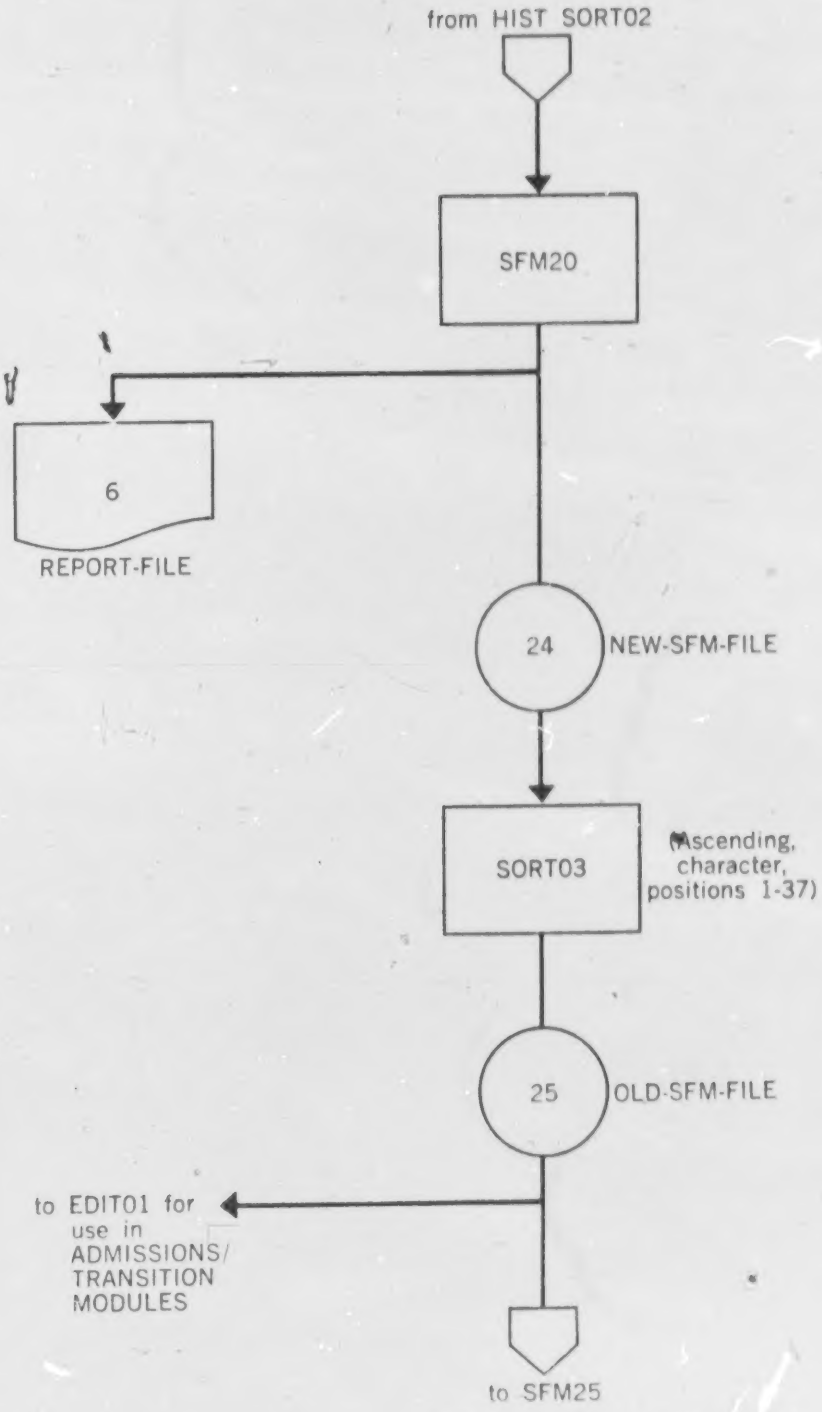
7 source of students - by broad program category

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
OBSERV-READ	This overlayable section opens, reads, sequence checks, and closes the OBSERV-FILE.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
SUM-OBSERV	This overlayable section summarizes the records on the OBSERV-FILE producing the following records on the UPDT-FILE - 39 SPP-TOTAL-RCD — sum by SPOP 39 SPP-SUMMARY-RCD — sum by BPC/L within SPOP 46 SPD-TOTAL-RCD — sum by SPOP 46 SPD-SUMMARY-RCD — sum by PROG/L within SPOP 49 DIST-TOTAL-RCD — sum by BPC/L 49 DIST-SUMMARY-RCD — sum by REC PROG/L within BPC/L 49 TRAN-TOTAL-RCD — sum by sending BPC/PROG/L 49 TRAN-SUMMARY-RCD — sum by REC BPC/PROG/L within REC BPC/PROG/ Additional records are formed from the TRAN-TOTAL and TRAN-SUMMARY records. These are as follows - (the data will be aggregated by the next program) 50 BPC-TRAN — for BPC transition 52 PROG-SOURCE — source of students by program 54 BPC-SOURCE — source of students by BPC
UPDATE-PUT	This overlayable section opens, writes the UPDATE-FILE.

Program Block Diagram
SFM20



PROGRAM INFORMATION

Program Name	-	SFM20
Date Written	-	May, 1974
Computer Language	-	ANS COBOL

PROGRAM PURPOSE

This program calculates the distribution and transition percentages from the total and summary records produced by SFM15.

Seven sets of calculations are performed. These are:

1 Distribution of source population to program/level

2 Participation of source population in broad program/level

3 Distribution of broad program/level to program/level

4 Transition from program/level to program/level

5 Transition from broad program/level to broad program/level

6 Source of students by program/level

7 Source of students by broad program/level

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
UPDATE-FILE	80	3600	Standard	Deleted

UPDATE-FILE contains the control and definition records generated by SFM01 and SFM02. The observation summary and total records comprising most of the file were created by SFM15.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
NEW-SFM-FILE	80	3600	Standard	Passed to SFM25 Saved for input to subsequent runs.

REPORT-FILE contains the run summary report for SFM20.

NEW-SFM-FILE contains the control and definition data copied from UPDATE-FILE. The information added by SFM20 consists of the percentage distribution within each category and level for each of the seven record types.

PROGRAM PROCESSING NARRATIVE

SFM20 reads the TOTAL record for each category/level and uses this data for the divisor for each of the succeeding SUMMARY records within the category/level. This is repeated for all appropriate categories within the seven report record groups.

The largest value in a series is retained in memory until the category/level is completed. Any accumulated rounding error is used to adjust this value so that the distribution/transition vector totals 100.0.

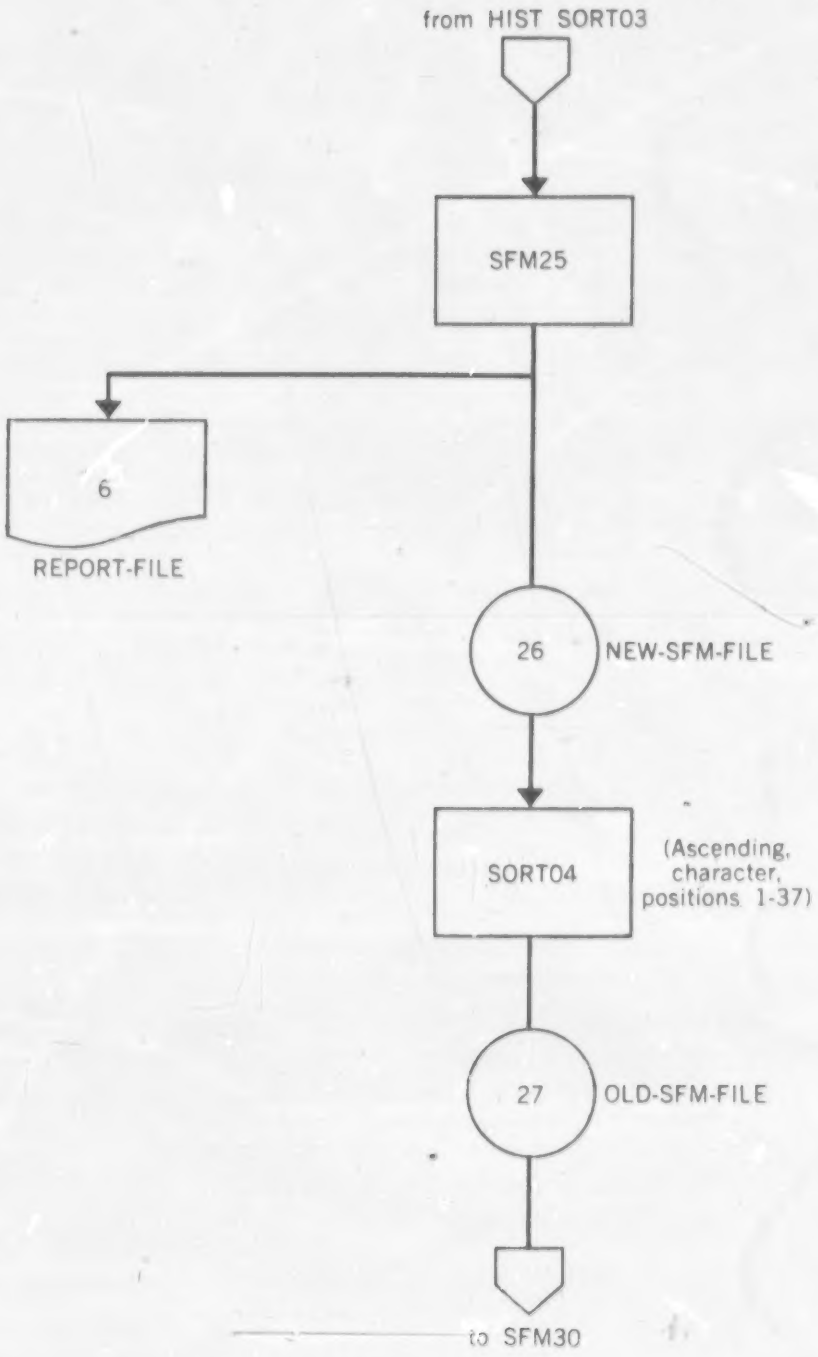
The NEW-SFM-FILE produced by this program contains data that may be used as input data to the ADMISSIONS and/or TRANSITION MODULES. (Because of file label conventions for some computers the file actually used may be the OLD-SFM-FILE produced by the sort routine following program SFM20.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
COPY-FILE	This section copies UPDATE-FILE to NEW-SFM-FILE.
CALCULATION	This overlayable section performs the calculations for the SOURCE-POPULATION PARTICIPATION, SOURCE-POPULATION-DISTRIBUTION, BROAD-PROGRAM-DISTRIBUTION and transition probabilities.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE. Data to be written is in WORK-RECORD.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN SUM	This overlayable section writes the run summary statistics and closes any open files.
UPDATE-READ	This overlayable section opens, reads, sequence checks, and closes the UPDATE-FILE.

Program Block Diagram
SFM25



PROGRAM INFORMATION

Program Name	-	SFM25
Date Written	-	May, 1974
Computer Language	-	ANS COBOL

PROGRAM PURPOSE

This program rearranges the values in the sort key fields so that data for sequential terms will sort together for the reports produced by SFM30.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	3600	Standard	Saved

OLD-SFM-FILE contains the control and definition data records generaged by SFM01 and SFM02. The major portion of the file consists of the calculated matrix values produced in programs SFM15 and SFM20.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
NEW-SFM-FILE	30	3600	Standard	Passed to SFM30

REPORT-FILE contains the run summary report for SFM25.

NEW-SFM-FILE contains a copy of OLD-SFM-FILE with the term codes moved to SFM-UPDT-KEY. This file contains a special record which will prevent usage by other than SFM30.

PROGRAM PROCESSING NARRATIVE

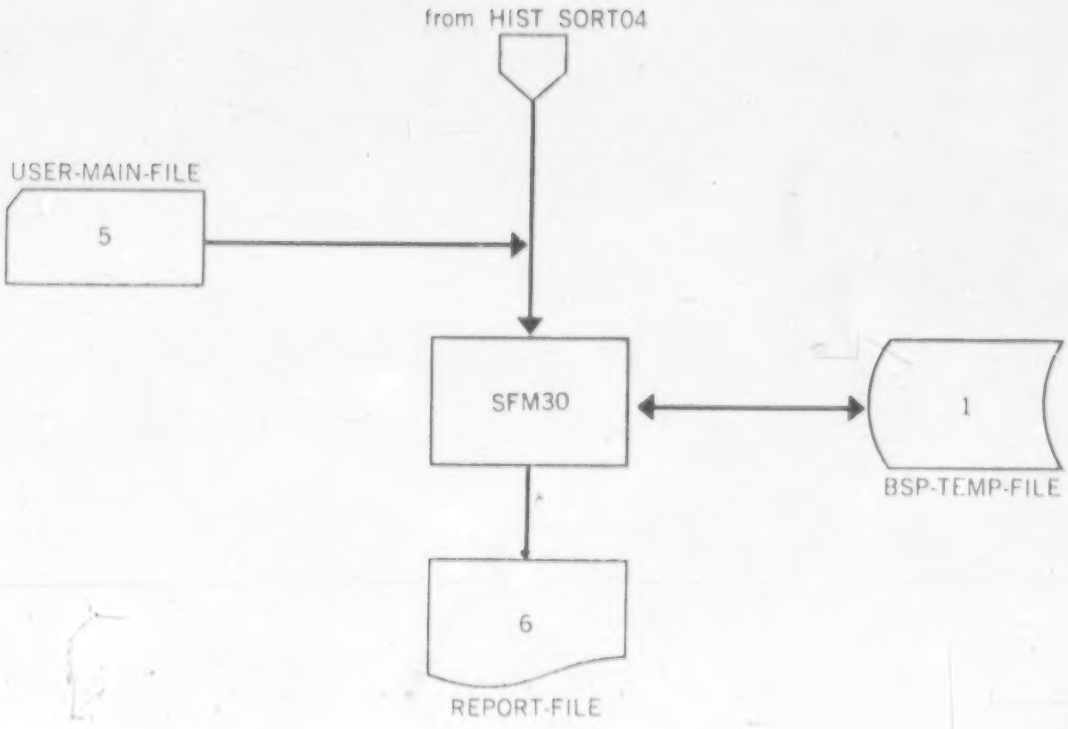
This program moves a non-zero term codes to SFM-UPDT-KEY and zeros out the term-code field of each record.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
COPY-FILE	This section moves the TERM-CODE to UPDT-KEY and then sets the TERM-NUM to zero. This will permit data for consecutive terms to be sorted together for the history reports.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE. Data to be written is in NEW-SFM-RECORD.
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.

Program Block Diagram
SFM30



PROGRAM INFORMATION

Program Name - SFM30

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

SFM30 produces the HISTORY-MODULE reports.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	80	Standard	Deleted
BSP-TEMP-FILE	754	754	Standard	Deleted (work)

OUTPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
BSP-TEMP-FILE	754	754	Standard	Deleted (work)

PROGRAM PROCESSING NARRATIVE

USER-MAIN-FILE is read first to obtain the SFM-IA report request record.

Tables for Source Population, Program, Broad Program Category, Student Level and Term names and abbreviations are then built using the definition records on the OLD-SFM-FILE. If the in-core tables overflow for any of the first three categories, the BSP-TEMP-FILE is used. The remainder of the OLD-SFM-FILE is then read to produce the requested reports.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	Fatal errors cause exit here.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
COMMENT-LIST	This section lists the COMMENT-SET-RECORDS to form the first part of the set of reports.
DEFINITION-SAVE	This overlayable section saves the definitions of institution, terms, student levels, source populations, broad program categories, programs. The TEMP files will be used if the internal tables become full.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
HIST-REPT-1	This overlayable section prints the source population distribution report (from type -31- records).
HR2-PREP	This section prints the source population participation report (from type -30- records). It uses the same code as REPT-01.
HIST-REPT-3	This overlayable section prints the broad program category distribution report.
HIST-REPT-4	This overlayable section prints the program transition report (from type -40- records).
HIST-REPT-5	This overlayable section prints the broad program transition report (from type -40- records).

HIST-REPT-6	This overlayable section prints the program source of students report (from type -50- records).
HIST-REPT-7	This overlayable section prints the broad program source of students report (from type -50- records).
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PROCESS-USER	This section processes the user control cards. Multiple -SFM-IA- records will cause the table to be set up to print multiple reports.
PROG-MAJOR	This overlayable section performs all input/output operations for the PROG-TEMP-FILE.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
SEARCH-PROGRAM	This overlayable section is a binary search of the SEQ-PROG-TABLE. This table contains the sequence number for STUDENT-PROGRAMS in ascending order. On entry the value to be located is stored in MATCH-PROG. On exit FOUND-SW is set to 'Y' for a match and PROG-INDX points to SEQ-PROG-ENTRY. If no match is found, FOUND-SW is set to 'N'. The PROG-TEMP-FILE may be used if there are more than MAX-PROG different programs.

SRCH-SOURCE-POP	This overlayable section is a binary search of the SEQ-SPOP-TABLE. This table contains the sequence numbers for SOURCE-POPULATIONS in ascending order. On entry the value to be located is stored in MATCH-SPOP. On exit FOUND-SW is set to 'Y' for a match and PROG-INDX points to SEQ-SPOP-ENTRY. If no match is found, FOUND-SW is set to 'N'. The SPOP-TEMP-FILE may be used if there are more than MAX-SPOP different file source populations.
SRCH-STUD-LVL	This overlayable section is a binary search of the SEQ-STLV-TABLE. This table contains the sequence numbers for STUDENT-LEVELS in ascending order. On entry the value to be located is stored in MATCH-STLV. On exit FOUND-SW is set to 'Y' for a match and PROG-INDX points to SEQ-STLV-ENTRY. If no match is found, FOUND-SW is set to 'N'.
SEARCH-TERM	This overlayable section is a binary search of the SEQ-TERM-TABLE. This table contains the sequence numbers for terms in ascending order. On entry the value to be located is stored in MATCH-TERM. On exit FOUND-SW is set to 'Y' for a match and PROG-INDX points to SEQ-TERM-ENTRY. If no match is found, FOUND-SW is set to 'N'.
USER-FILE-READ	This overlayable section opens, reads, closes the USER-MAIN-FILE. If the optional file is indicated as present, the USER-OPT-FILE is opened and read at USER-MAIN-END. Both files are read into USER-WORK-RECORD.
SRCH-TABLETS	Overlayable section sets up appropriate flags and values for a search of the in-core or overflow tables.
SRCH-FOR-VALUE	Overlayable sections gets the correct table block in-core for a table search (or determines that the value sought is not in the tables). Once the appropriate block is in-core a binary search is performed on the in-core table.
BPC-SPOP-PROG-IO	This overlayable section performs all I/O operations for the BSP-TEMP-FILE.

INPUT SECTION

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

REPORT CONTROL RECORD

Required | All Modules

PAGE ___ OF ___

DATE _____

1d

Module				Option			Report Number		Lines Per Page	
				R	P	T				
7	8	9	10	11	12	13	14	15	50	51

115

Sequence

73	74	75	76	77	78	79	80	

COMMENTS

PURPOSE: This input requests one or more reports to be produced and permits overriding the default lines per page value.

MODULE: Enter 'HIST', 'ADMS' or 'TRAN' to indicate the module reports are being requested from.

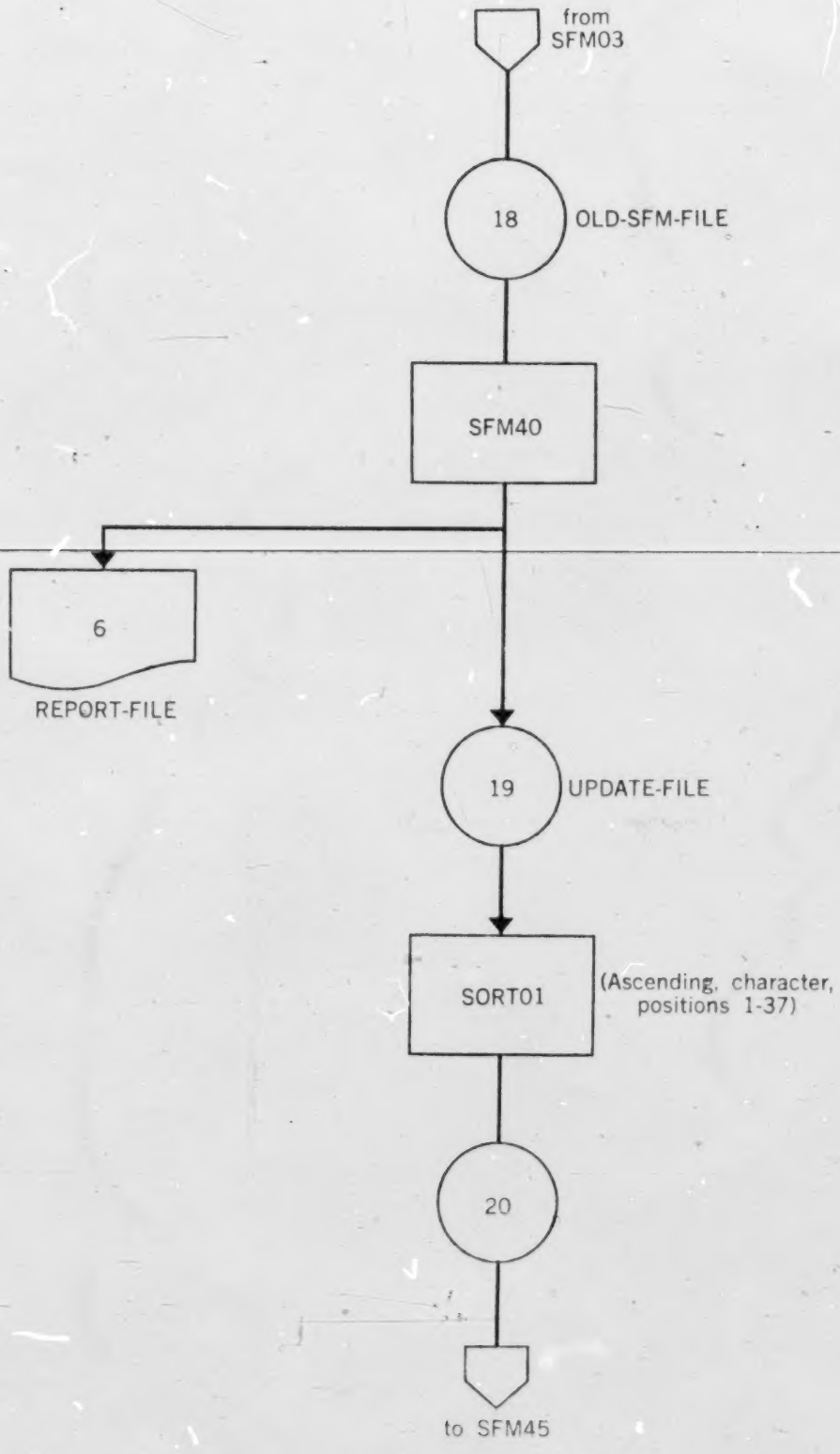
REPORT NUMBER: Enter number of reports requested. The HISTORY MODULE produces reports 1-7, the ADMISSIONS MODULE reports 8-11 and the TRANSITION MODULE reports 12-16. If REPORT NUMBER contains '**' all reports for the module will be produced.

LINES PER PAGE: Enter lines per page (30-99) desired on reports. (Default=55)

NOTE: Prepare one input record for each report requested (unless the '**' REPORT NUMBER option is used).

ADMISSIONS MODULE

Program Block Diagram
SFM40



PROGRAM INFORMATION

Program Name	-	SFM40
Date Written	-	May, 1974
Computer Language	-	ANS COBOL

PROGRAM PURPOSE

This program distributes the specified number of new applicants in each source population to the specified broad program/levels or program/levels.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	3600	Standard	Deleted

OLD-SFM-FILE contains the control and definition data records plus the participation and distribution matrices. These matrices may have been entirely user defined or they may have been generated by the HISTORY MODULE and passed to SFM40 with or without updating by the EDIT MODULE.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
UPDATE-FILE	80	3600	Standard	Passed to SFM45

REPORT-FILE contains the run summary report for SFM40.

UPDATE-FILE contains all the records from OLD-SFM-FILE with the addition of the computed distribution values. A record is written for each broad program/level or program/level which receives students from a given source population. These records contain the number of new enrollees.

PROGRAM PROCESSING NARRATIVE

SFM40 reads the SPP1 record for each source population. This record contains the number of new applicants for that category. This number is distributed to the categories listed on the following SPP3 records by the percentages indicated. (SPP3 records are an internal record format and have been generated by SFM02).

The alternate form of input data (SPP2 records) specifies an absolute number of applicants to each category. In this case, the number of the applicants for the source population is not known until the entire list of associated SPP3 records has been processed. This sum is written out as an SPP2 record so this total will be available for the report subheading.

The second step of the processing applies the admission policy factor (default = 100.0) yielding the number of admittees. Third, the "no-show" rate is applied giving the actual number of new enrollees.

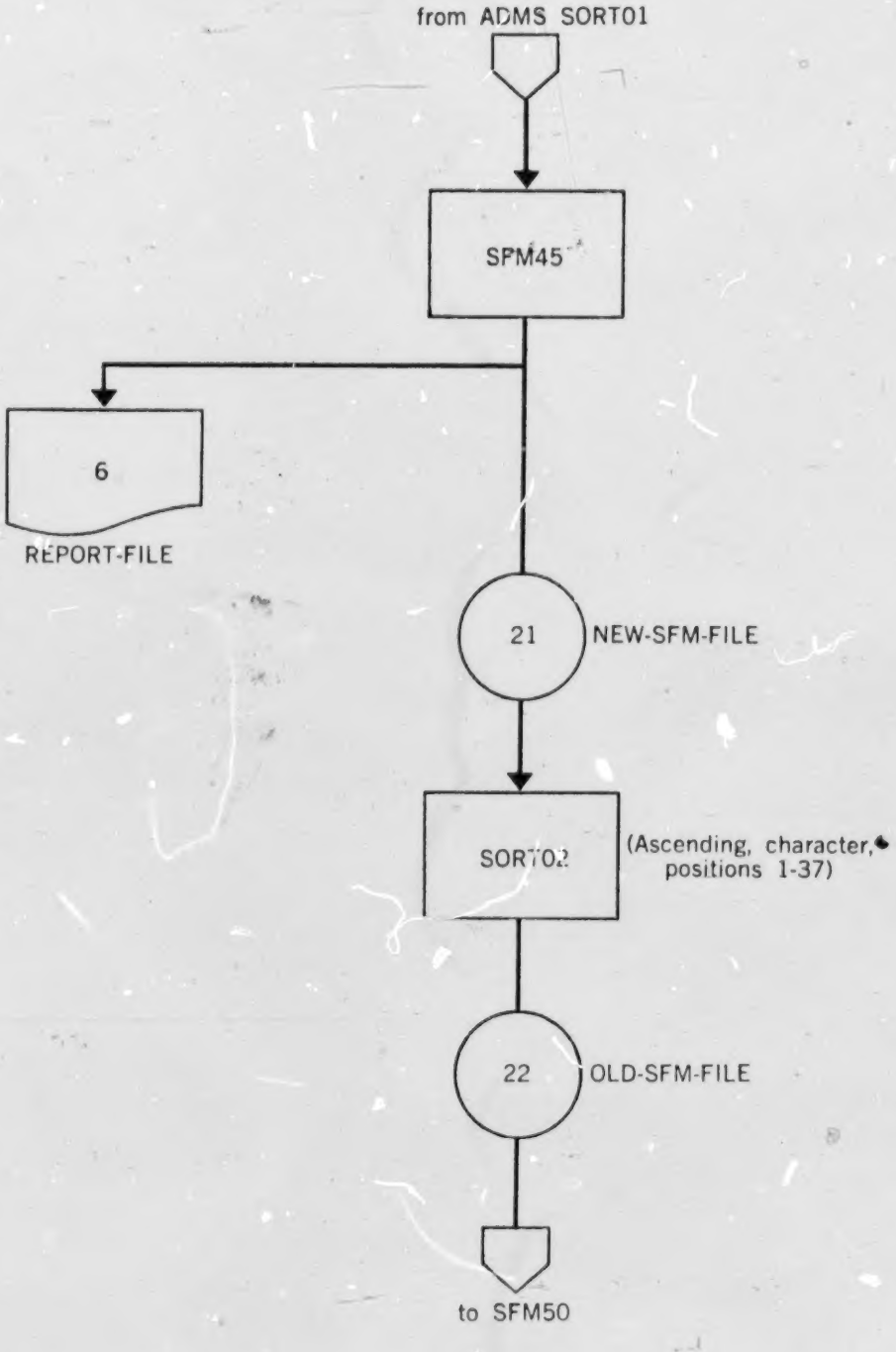
If the distribution from source population has been to broad program category, the distribution to program remains to be done. This must wait until the total number of new enrollees in the broad program is known. This second distribution is accomplished by SFM45.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
COPY-FILE	This section copies the OLD-SFM-FILE to UPDT-FILE.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PARTICIPATION	This section distributes the new applicants (-NAPL-) to broad program (or program) using -SPP1- and -SPP2-. If the user has supplied both -SPP1- and -SPP2- data, or if one is new input and the other is carried over from a previous iteration. The following rule holds--use largest of (NAPL X PCT) or (SPP2). This may result in calculated -NAPL- larger than data.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
UPDATE-WRITE	This overlayable section opens, writes the UPDATE-FILE.

Program Block Diagram
SFM45



PROGRAM INFORMATION

Program Name - SFM45

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program totals the numbers of new enrollees in each broad program category/level and then distributes them,if necessary, to the specified program/level.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
UPDATE-FILE	80	3600	Standard	Deleted

UPDATE-FILE contains the control and definition records in addition to the distribution matrices. The new enrollee records were produced by SFM40.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
NEW-SFM-FILE	80	3600	Standard	Passed to SFM50

REPORT-FILE contains the run summary report for SFM45.

NEW-SFM-FILE contains the records from UPDATE-FILE plus new enrollee records for those program/levels which received students from broad program/levels.

PROGRAM PROCESSING NARRATIVE

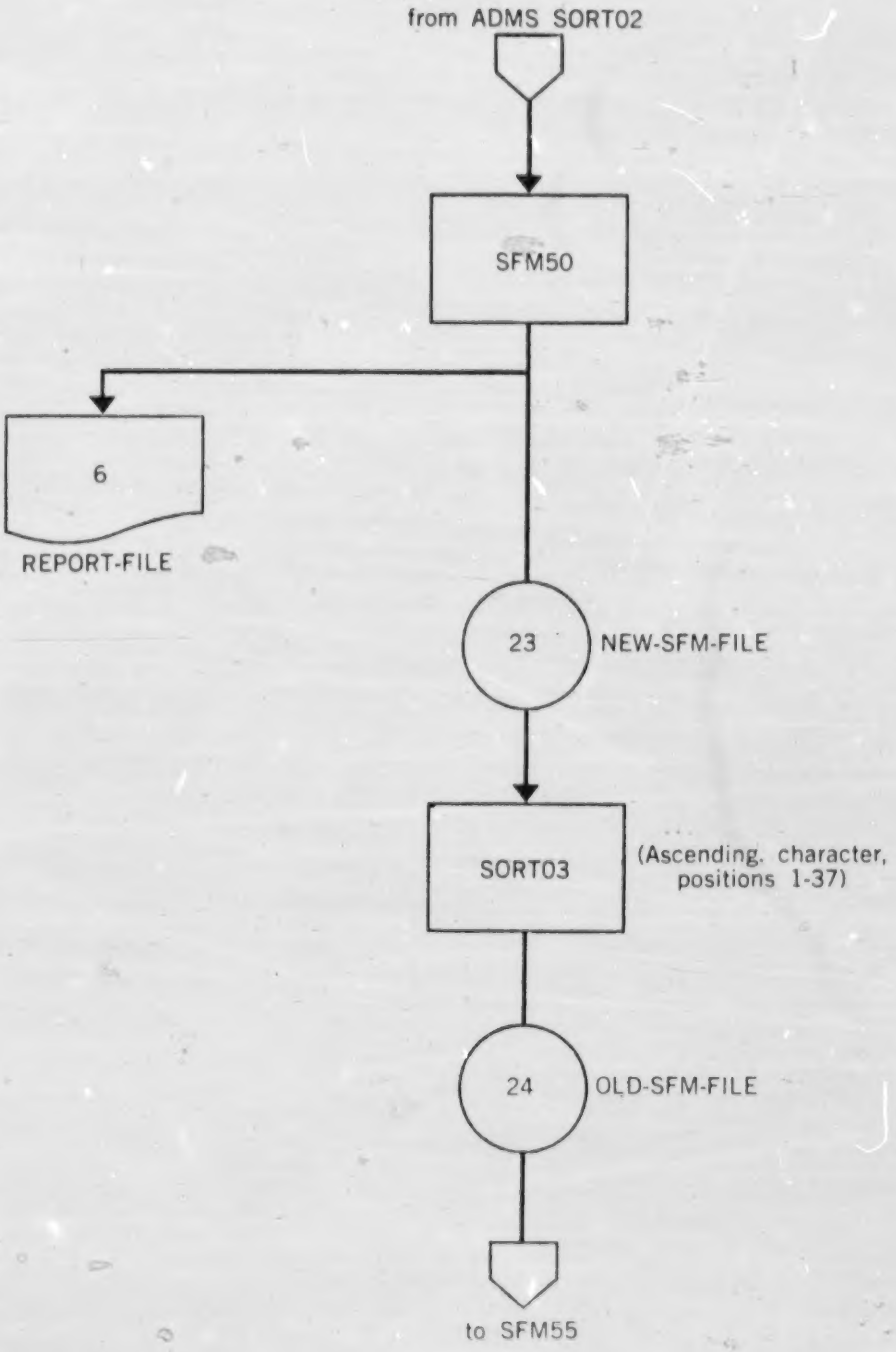
SFM45 totals the new enrollees by broad program/level and then applies the appropriate distribution vector to distribute the new enrollees to program/level. The resulting values are inserted in the distribution records and written out. Additional records, keyed to the receiving programs, are written which show the numbers of distributed students.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
COPY-FILE	This section copies the UPDT-FILE to NEW-SFM-FILE.
DIST-INIT	This section sums the participation -NENR- for a BROAD-PROGRAM/LEVEL then applies the distribution vector to transfer these students to a PROGRAM/LEVEL. These new enrollees must be summed with any that may have gone directly to PROGRAM/LEVEL from a SOURCE-POPULATION (SFM10). This summation is done by SFM50.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
UPDATE-READ	This overlayable section opens, reads, sequence checks, and closes the UPDATE-FILE.

Program Block Diagram
SFM50



PROGRAM INFORMATION

Program Name - SFM50

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program totals the number of new enrollees in each program/level. These students may have come from the associated broad program/level or directly from a source population.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	3600	Standard	Deleted

OLD-SFM-FILE contains the control, definition and distribution matrix data. The results of the two distribution steps are carried as new enrollment records.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
NEW-SFM-FILE	80	3600	Standard	Passed to SFM55 May also be input to subsequent TRANSITION MODE run (SFM01)

REPORT-FILE contains the run summary report for SFM50.

NEW-SFM-FILE is a copy of OLD-SFM-FILE with the addition of records which contain the total of the new enrollees. This file contains the new enrollee information in the internal format required by the TRANSITION MODULE.

PROGRAM PROCESSING NARRATIVE

SFM50 sums the numbers of new enrollees for each student program/level. If all of the source population distributions were to broad program/level, there will be only a single new enrollee record for each program/level. At the other extreme, if each of n source populations distributed directly to program/level, there may be n new enrollee records for each program/level. A record containing this total number of new enrollees is written to NEW-SFM-FILE.

PROGRAM SECTION NARRATIVE

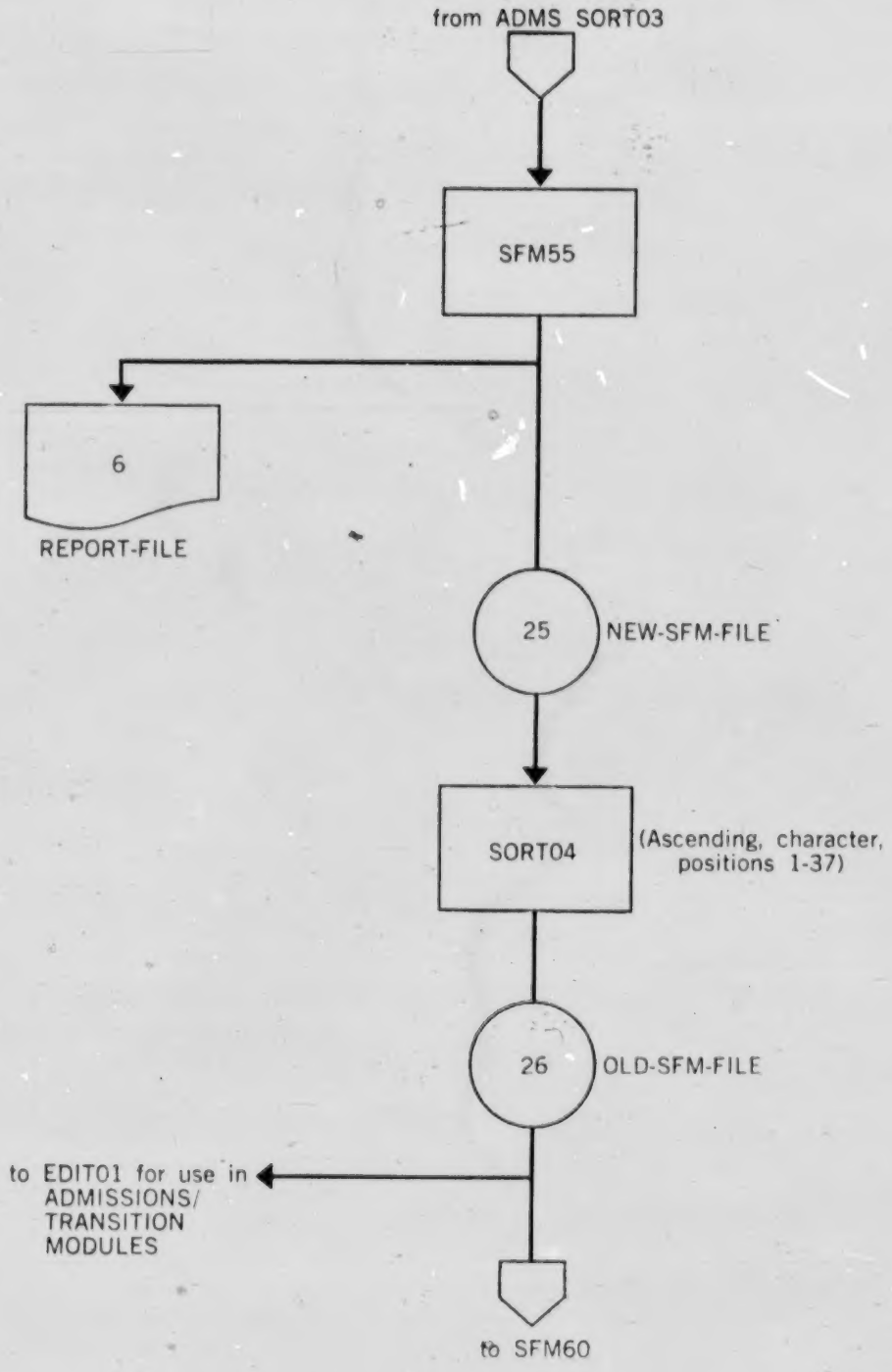
This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
CALCULATE-SOURCE-PCT	This section calculates percentages for source of students by BROAD-PROGRAM/STUDENT-LEVEL (record type -62-).
CONTROL-SAVE	This section saves the required values from the CNTL-RECORD-SET (SET-IDENT = 10
COPY-FILE	This section copies OLD-SFM-FILE to NEW-SFM-FILE.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE. Data to be written is in NEW-SFM-RECORD.
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PROCESS-USER	This overlayable section processes the USER-INPUT records read into USER-WORK-RECORD by USER-GET.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
SUMMARIZE-ENR	This section summarizes the new enrollments by PROG/STLV from SPOP (KEY-5=0002) and BPC (KEY-5=0003). The total record written has KEY-5=0001. The sum is in data field 2 (RECORD-TYPE -40-).

USER-FILE-READ

This overlayable section opens, reads, closes the USER-MAIN-FILE.

Program Block Diagram
SFM55



PROGRAM INFORMATION

Program Name - SFM55

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program modifies the sort keys of each record so that the records will sort in the proper sequence for the report program, SFM60.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	3600	Standard	Passed to SFM60

OLD-SFM-FILE contains all of the calculated data from the ADMISSIONS MODULE.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
NEW-SFM-FILE	80	3600	Standard	Passed to SFM60

REPORT-FILE contains the run summary report for SFM55.

NEW-SFM-FILE contains a copy of the OLD-SFM-FILE with some of the sort key fields modified. This file contains a record which will prevent the use of this file as an input file to any program other than SFM60.

PROGRAM PROCESSING NARRATIVE

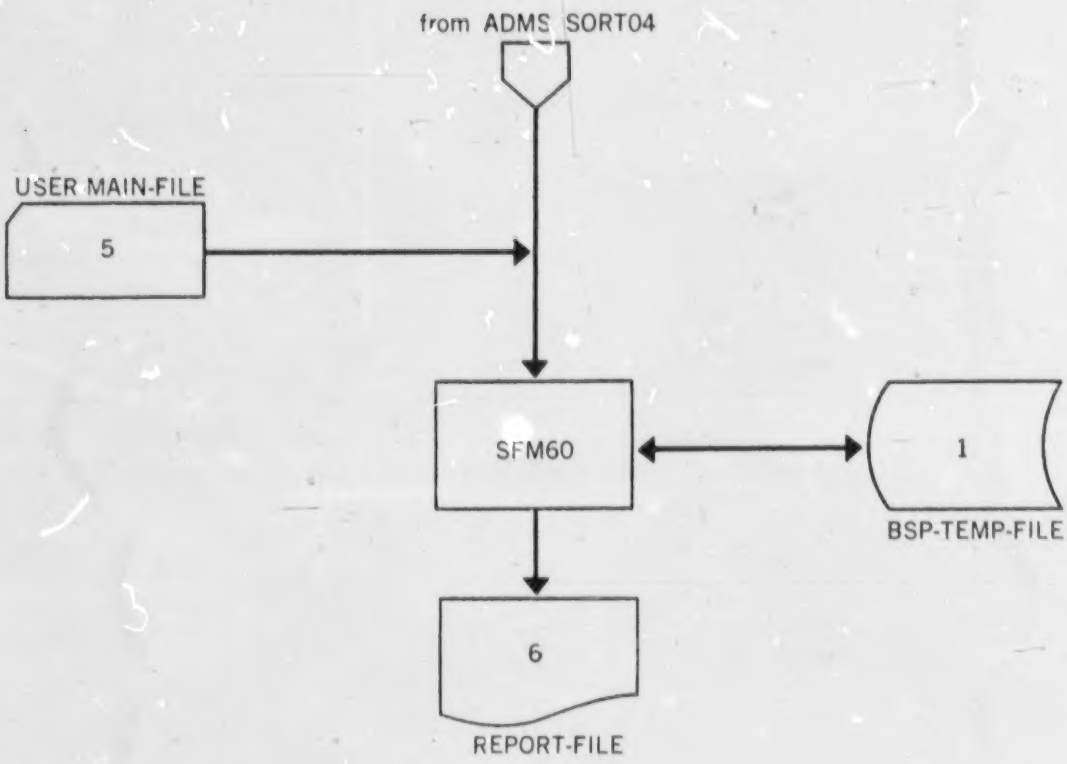
SFM55 modifies the sort keys of each record so that the records will sort in the proper sequence for the report program SFM60.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
COPY-FILE	This section moves the TERM-CODE to UPDT-KEY and then sets the TERM-NUM to zero. This will permit data for consecutive terms to be sorted together for the history reports.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE. Data to be written is in NEW-SFM-RECORD.
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.

Program Block Diagram
SFM60



PROGRAM INFORMATION

Program Name - SFM60

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program prints the admissions module reports:

1. Applications, Admissions, Enrollments
2. Source of New Enrollees
3. Distribution of Broad Program
4. Projected New Enrollees

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
USER-MAIN-FILE	80	80	Omitted	Deleted
OLD-SFM-FILE	80	800	Standard	Saved
BSP-TEMP-FILE	1254	1254	Standard	Deleted (work)

USER-MAIN-FILE contains control records (SFM-IA) which indicates the reports to be printed.

OLD-SFM-FILE contains the calculated admissions data in the order required for the reports.

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
BSP-TEMP-FILE	1254	1254	Standard	Deleted (work)

REPORT-FILE contains the ADMISSIONS MODULE reports.

PROGRAM PROCESSING NARRATIVE

USER-MAIN-FILE is read first to obtain the SFM-IA report request record. Tables for Source Population, Program, Broad Program Category, Student Level and Term names and abbreviations are then built using the definition records on the OLD-SFM-FILE. If the in-core tables overflow for any of the first three categories, the BSP-TEMP-FILE is used. The remainder of the OLD-SFM-FILE is then read to produce the requested reports.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

ADMS-REPT-08	This overlayable section prints the applications, admissions, enrollment report (uses record type -30-).
ADMS-REPT-09	This overlayable section prints the source of new enrollees report (record type -62-).
ADMS-REPT-10	This overlayable section prints the broad program category distribution report (record type -40-).
ADMS-REPT-11	This overlayable section prints the report of projected new enrollees (record type -40-) (KEY-4 = 00000 KEY-5 = 0001).
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
COMMENT-LIST	This section lists the COMMENT-SET-RECORDS to form the first part of the set of reports.
DEFINITION-SAVE	This overlayable section saves the definitions of institution, terms, student levels, source populations, broad program categories, programs. The TEMP files will be used if the internal tables become full.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PROCESS-USER	This section processes the user control cards.Multiple -SFM-IA- records will cause the table to be set up to print multiple reports.

REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
USER-FILE-READ	This overlayable section opens, reads, closes the USER-MAIN-FILE. Data is read into USER-WORK-RECORD.
SRCH-TABLETS	Overlayable sections sets up appropriate flags and values for a search of the in-core or overflow tables.
SRCH-FOR-VALUE	Overlayable sections gets the correct table block in-core for a table search (or determines that the value sought is not in the tables). Once the appropriate block is in-core a binary search is performed on the in-core table.
BPC-SPOP-PROG-IO	This overlayable section performs all I/O operations for the BSP-TEMP-FILE.

INPUT SECTION

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

REPORT CONTROL RECORD

Required | All Modules

PAGE ___ OF ___

DATE _____

1d

Module				Option			Report Number		Lines Per Page	
				R	P	T				
7	8	9	10	11	12	13	14	15	50	51

Sequence

73	74	75	76	77	78	79	80

128 151

COMMENTS

PURPOSE: This input requests one or more reports to be produced and permits overriding the default lines per page value.

MODULE: Enter 'HIST', 'ADMS' or 'TRAN' to indicate the module reports are being requested from.

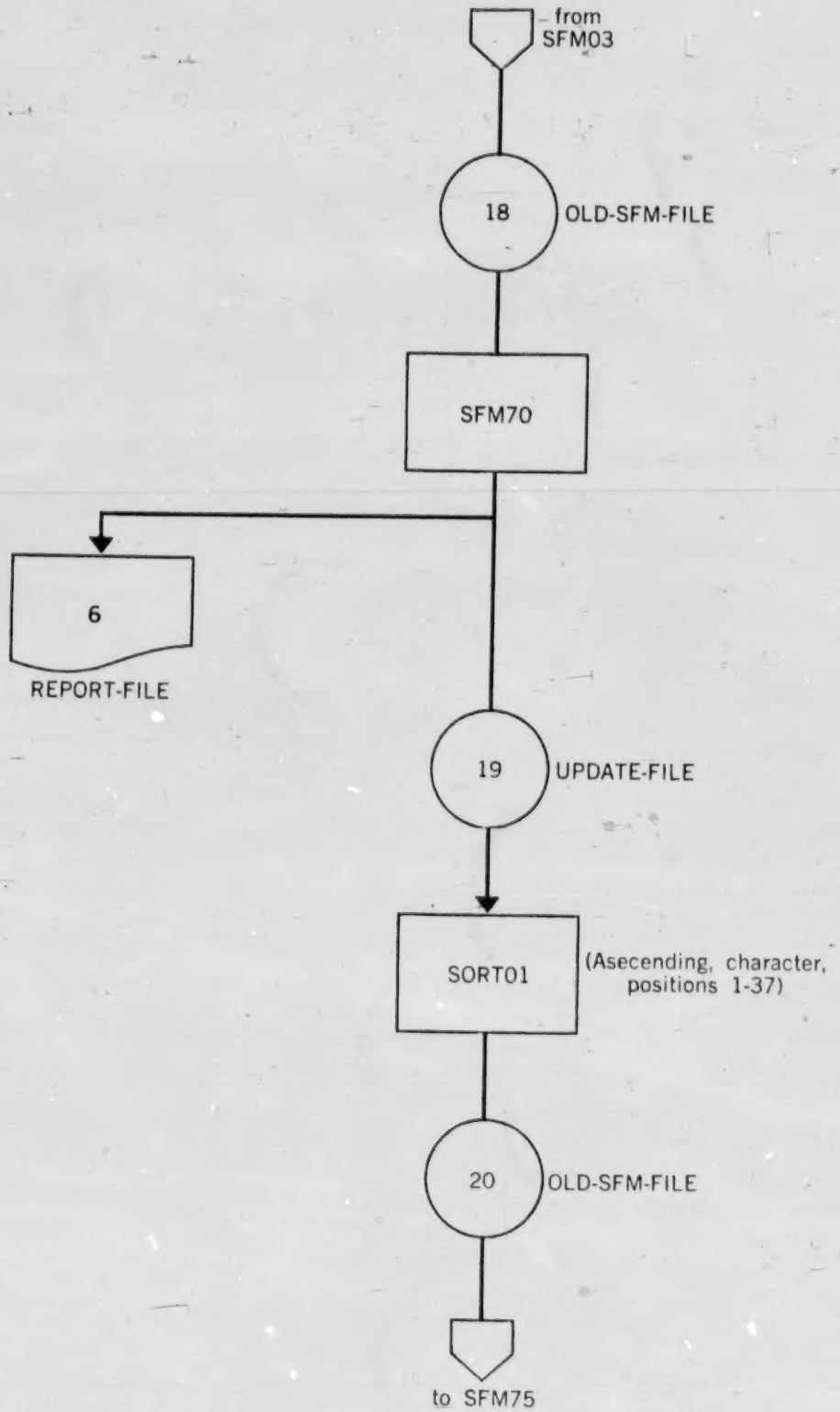
REPORT NUMBER: Enter number of reports requested. The HISTORY MODULE produces reports 1-7, the ADMISSIONS MODULE reports 8-11 and the TRANSITION MODULE reports 12-16. If REPORT NUMBER contains '**' all reports for the module will be produced.

LINES PER PAGE: Enter lines per page (30-99) desired on reports. (Default=55)

NOTE: Prepare one input record for each report requested (unless the '**' REPORT NUMBER option is used).

TRANSITION MODULE

Program Block Diagram
SFM70



PROGRAM INFORMATION

Program Name - SFM70

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program sums the beginning inventory of students (BENR) and the new enrollees (NENR) by program and level giving the current enrollment. The transition matrix is then applied to these program/level totals to determine the number of students from each program/level exiting and continuing into each program/level next term.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	3600	Standard	Deleted

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
UPDATE-FILE	80	3600	Standard	Passed to SFM 75

REPORT-FILE contains the run summary report for SFM70.

UPDATE-FILE contains the calculate numbers of moving students. In addition a record is created to indicate the source of students.

PROGRAM PROCESSING NARRATIVE

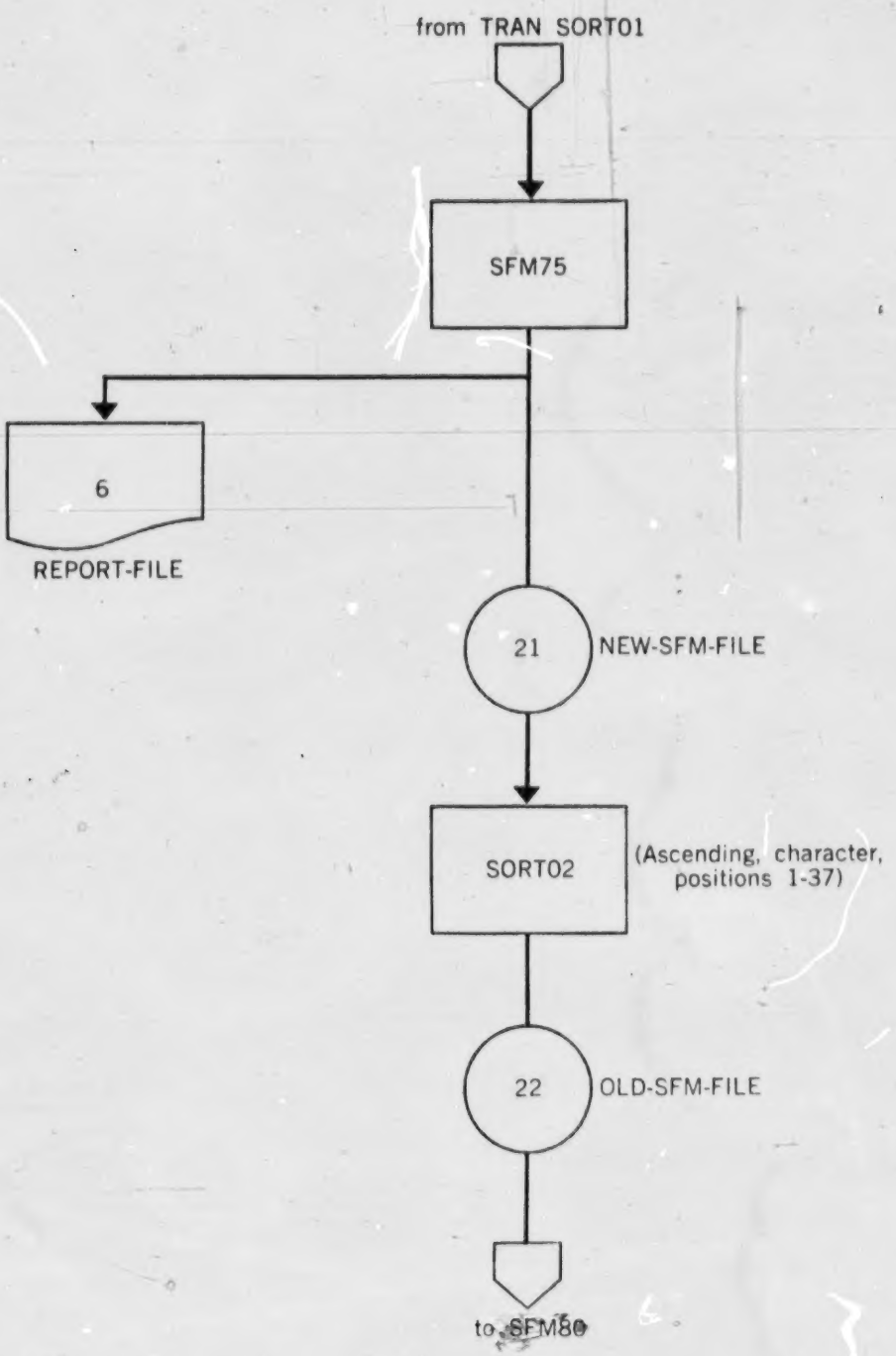
Beginning enrollment and new enrollment for a program/student level is summed to produce current enrollment. The current enrollment is multiplied by the transition vector for the program/student level to determine the destination of the students at the beginning of the next term. If transition data is not present for a program/student level for which students are enrolled, a transition value is generated that will continue them in the same program/student level next term. An system message is also produced that will be printed by SFM85.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a UPDATE-FILE that will cause termination of all the following programs.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
COPY-FILE	This section copies OLD-SFM-FILE to UPDATE-FILE.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
REPT-NOTE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary.
TRANSITION	This section sums the beginning enrollment (BENR) and new enrollment (NENR) to produce the current enrollment (CENR). The current enrollment is multiplied by the transition vector giving the PROGRAM-TRANSITION values. The PROGRAM-TRANSITION values are summed by program SFM75 to give the final enrollment FENR).
UPDATE-WRITE	This overlayable section opens, writes the UPDATE-FILE.

Program Block Diagram
SFM75



PROGRAM INFORMATION

Program Name	-	SFM75
Date Written	-	May, 1974
Computer Language	-	ANS COBOL

PROGRAM PURPOSE

This program sums the number of exiting students and students continuing into the next term by receiving exit category and receiving program/level.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	3600	Standard	Deleted

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
NEW-SFM-FILE	80	3600	Standard	Passed to SFM80, SFM01

REPORT-FILE contains the run summary report for SFM75.

NEW-SFM-FILE contains the summarized enrollments which are the ending inventory of students. This file may be input to a subsequent TRANSITION MODULE run.

PROGRAM PROCESSING NARRATIVE

The number of beginning students for the next term is calculated for each program/student level by summing the students continuing and transitioning into the program/student level. These values are read from type 40 records. Record type 74 is then used to calculate transition percentages by Broad Program Category (summarizing the program/student level transition data calculated in SFM70). Record type 76 is used next to calculate the source of student percentages for each program/student level. Finally, record set 78 is used to calculate the source of student percentages for Broad Program Category/Student level.

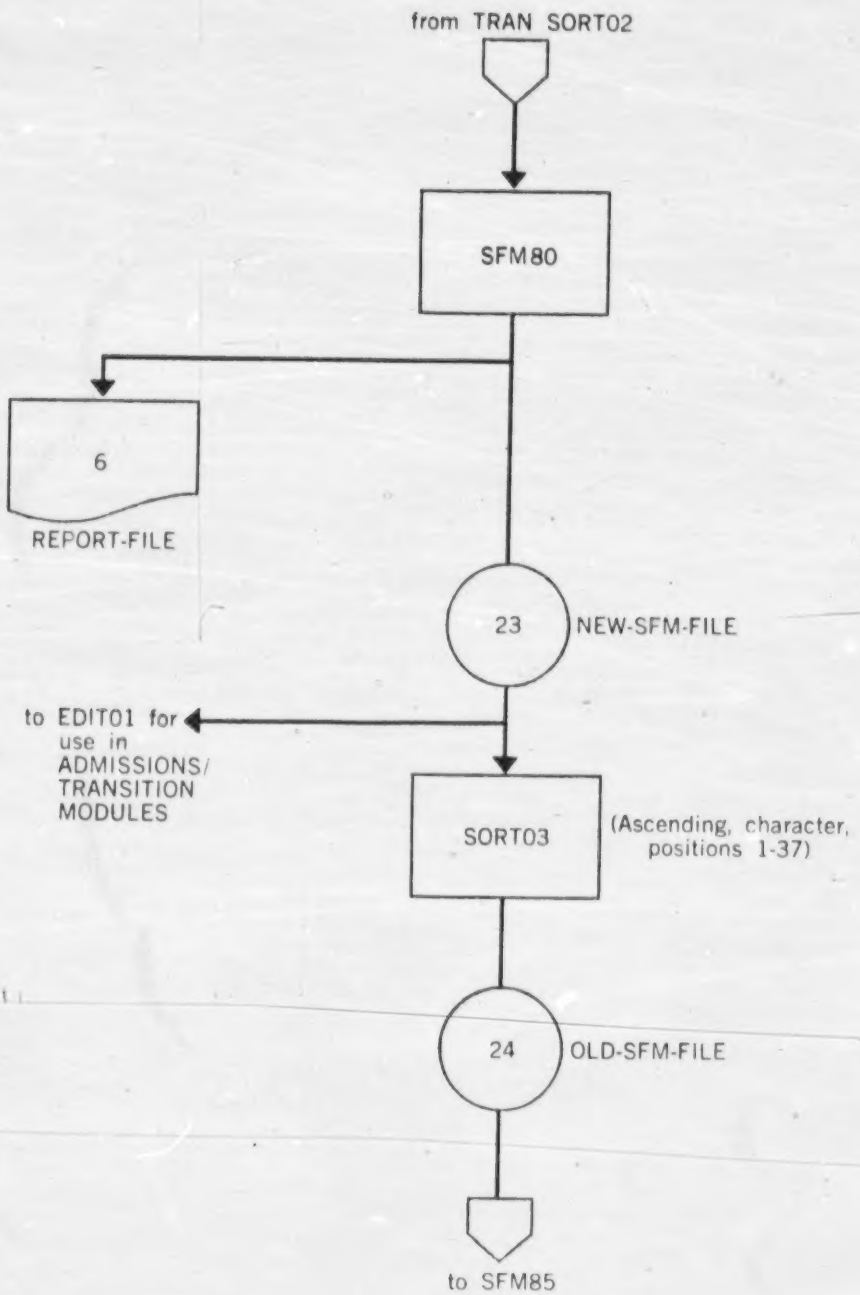
PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
CALC-BPC-TRANSITION-PCT	This section calculates the percentages for the BROAD-PROGRAM/STUDENT-LEVEL transition report (uses type -74- records).
CALC-BPC-SOURCE-PCT	This section calculates the percentages for the BROAD-PROGRAM/STUDENT-LEVEL source of students report. Uses type -78- records.
CALCULATE-SOURCE-PCT	This section calculates percentages for source of students by STUDENT-PROGRAM/STUDENT-LEVEL. (Record type -76-).
CONTROL-SAVE	This section saves the required values from the CNTL-RECORD-SET (SET-IDENT =
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE. Data to be writter is in NEW-SFM-RECORD.
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PROCESS-USER	This overlayable section processes the USER-INPUT records read into USER-WORK-RECORD by USER-GET.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.

SUMMARIZE-ENR	This section summarizes the incoming students to a STUDENT-PROGRAM/ STUDENT-LEVEL. Record type is -40- . Input record - (KEY-4 = 9992 KEY-5 = 0004). Output record - (KEY-4 = 9992 Key-5 = 00000). Data field 1 = continuing. Data field 2 = transition in. Date field 3 = sum (BENR for next period).
USER-FILE-READ	This overlayable section opens, reads, closes the USER-MAIN-FILE.

Program Block Diagram
SFM80



PROGRAM INFORMATION

Program Name - SFM80

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program modifies some of the sort key fields so that the records may be used by SFM85.

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
OLD-SFM-FILE	80	3600	Standard	Saved

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
NEW-SFM-FILE	80	3600	Standard	Passed to SFM85

REPORT-FILE contains the run summary report for SFM80.

NEW-SFM-FILE contains records prepared for enrollment reports.

PROGRAM PROCESSING NARRATIVE

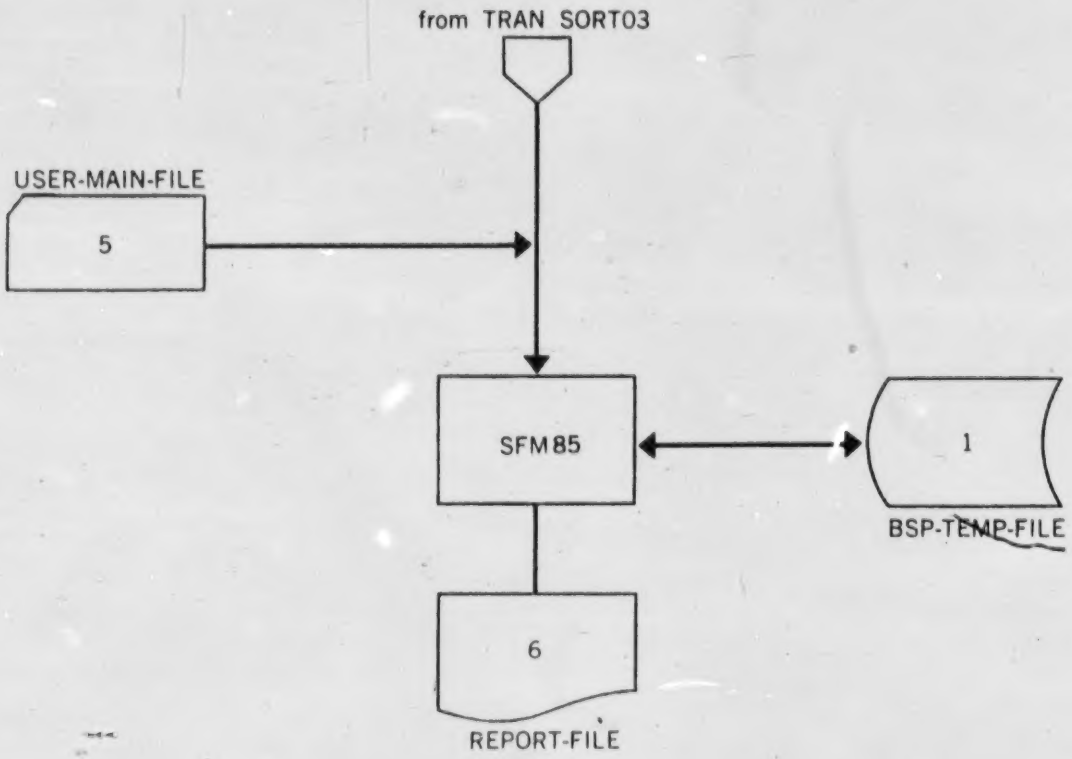
SFM80 modifies the sort keys of each record so that the records will sort in the proper sequence for the report program SFM85.

PROGRAM SECTION NARRATIVE

This program is written distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	This exit from the program will create a NEW-SFM-FILE that will cause termination of all the following programs.
COPY-FILE	This section moves the TERM-CODE to UPDT-KEY and then sets the TERM-NUM to zero. This will permit data for consecutive terms to be sorted together for the history reports.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
NEW-SFM-FILE-WRITE	This overlayable section opens, writes the NEW-SFM-FILE. Data to be written is in NEW-SFM-RECORD.
OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.

Program Block Diagram
SFM85



PROGRAM INFORMATION

Program Name - SFM85

Date Written - May, 1974

Computer Language - ANS COBOL

PROGRAM PURPOSE

This program prints the enrollment module reports.

1. Enrollment statistics
2. Transition for student program
3. Transition for broad program
4. Source of students for student program
5. Source of students for broad program

INPUT SPECIFICATIONS

The name, record size, block size, label status and disposition for all input files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
USER-MAIN-FILE	80	80	Omitted	Deleted
OLD-SFM-FILE	80	80	Standard	Saved
BSP-TEMP-FILE	754	754	Standard	Deleted (work)

OUTPUT SPECIFICATIONS

The file name, record size, block size, label status, and disposition for all output files supported by this program currently released by NCHEMS are listed below:

FILE NAME	RECORD SIZE	BLOCK SIZE	LABEL STATUS	FILE DISPOSITION AT END OF STEP
REPORT-FILE	121	121	Omitted	Listed
BSP-TEMP-FILE	754	754	Standard	Deleted (work)

PROGRAM PROCESSING NARRATIVE

USER-MAIN-FILE is read first to obtain the SFM-IA report request record. Tables for Source Population, Program, Broad Program Category, Student Level and Term names and abbreviations are then built using the definition records on the OLD-SFM-FILE. If the in-core tables overflow for any of the first three categories, the BSP-TEMP-FILE is used. The remainder of the OLD-SFM-FILE is then read to produce the requested reports.

PROGRAM SECTION NARRATIVE

This program is written in distinct sections. Each section performs certain logical functions. To assist the user in understanding this program, the name and function of each section is listed on the following pages.

MAIN-ABORT	Fatal errors cause exit here.
CONTROL-SAVE	This overlayable section saves the required values from the SFM-CNTL-SET.
COMMENT-LIST	This section lists the COMMENT-SET-RECORDS to form the first part of the set of reports.
DEFINITION-SAVE	This overlayable section saves the definitions of institution, terms, student levels, source populations, broad program categories, programs. The TEMP files will be used if the internal tables become full.
ERR-PRINT	This routine prints error messages. The arguments are: ERR-SEV, ERR-ID, ERR-FILE-ID, ERR-REC-NUM, ERR-DATA. Also uses ERROR-COUNT (ERR-INDEX).
ENRL-REPT-1	This overlayable section prints the enrollment projection report from type -40- records.
ENRL-REPT-2	This overlayable section prints the program transition report (from type -40- records).
ENRL-REPT-3	This overlayable section prints the broad program transition report (from type -74- records).
ENRL-REPT-4	This overlayable section prints the program source of students report (from type -76- records).
ENRL-REPT-5	This overlayable section prints the broad program source of students report (from type -78- records).

OLD-SFM-READ	This overlayable section opens, reads, sequence checks, and closes the OLD-SFM-FILE.
PROCESS-USER	This section processes the user control cards. Multiple - SFM-IA- records will cause the table to be set up to print multiple reports.
REPT-WRITE	This overlayable section writes the REPORT-FILE.
RUN-SUM	This overlayable section writes the run summary statistics and closes any open files.
USER-FILE-READ	This overlayable section opens, reads, closes the USER-MAIN-FILE. If the optional file is indicated as present, the USER-OPT-FILE is opened and read at USER-MAIN-END. Both files are read into USER-WORK-RECORD.
SRCH TABLETS	Overlayable sections sets up appropriate flags and values for a search of the in-core or overflow tables.
SRCH-FOR-VALUE	Overlayable sections gets the correct table block in-core for a table search (or determines that the value sought is not in the tables). Once the appropriate block is in-core a binary search is performed on the in-core table.
BPC-SPOP-PROG-IO	This overlayable section performs all I/O operations for the BSP-TEMP-FILE.

INPUT SECTION

RECORD IDENTIFIER

S	F	M	-	I	A
1	2	3	4	5	6

STUDENT FLOW MODEL

REPORT CONTROL RECORD

Required | All Modules

PAGE ___ OF ___

DATE _____

1d

Module				Option			Report Number		Lines Per Page	
				R	P	T				
7	8	9	10	11	12	13	14	15	50	51

181

Sequence

73	74	75	76	77	78	79	80	

COMMENTS

PURPOSE: This input requests one or more reports to be produced and permits overriding the default lines per page value.

MODULE: Enter 'HIST', 'ADMS' or 'TRAN' to indicate the module reports are being requested from.

REPORT NUMBER: Enter number of reports requested. The HISTORY MODULE produces reports 1-7, the ADMISSIONS MODULE reports 8-11 and the TRANSITION MODULE reports 12-16. If REPORT NUMBER contains '**' all reports for the module will be produced.

LINES PER PAGE: Enter lines per page (30-99) desired on reports. (Default=55)

NOTE: Prepare one input record for each report requested (unless the '**' REPORT NUMBER option is used).

RECORD DESIGN FORMS

DATE: May 1974

RECORD DESIGN FORM

PAGE NO. 1 of 2

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-CNTL-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters		Length	Description
			From	To		
10	USER-CNTL-ID	AN	1	6	6	'SFM-IA'
10	USER-MODULE-ID	AN	7	10	4	
88	USER-REQ-HIST					'HIST'
88	USER-REQ-ADM					'ADMS'
88	USER-REQ-ENR					'TRAN'
10	USER-OPTION	AN	11	13	3	
88	USER-REQ-RVN					'RUN'
88	USER-REQ-REPT					'RPT'
10	USER-REPT-NUM	AN	14	15	2	
10	USER-ITERATION	AN	16	17	2	
10	Filler		18	18	1	
10	USER-TERM	AN	19	22	4	
10	USER-ITER-YR	AN	23	24	2	
10	USER-ITER-NAME	AN	25	40	16	
10	USER-DATE	AN	41	48	8	
10	USER-OPT-FILE-IND	AN	49	49	1	
88	USER-OPT-FILE-DESIRED					'Y'
10	USER-LINES-GRP					
15	USER-LINES	N	50	51	2	
10	USER-ADM-INP-ID	AN	52	53	2	
10	USER-BENR-INP-ID	AN	54	55	2	
10	USER-TRAN-INP-ID	AN	56	57	2	

Notes: Input Form (1)

DATE: May 1974

RECORD DESIGN FORM

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-CNTL-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-GRP-IND-1	AN	58	58	1	
10	USER-ERR-IND-2	AN	59	59	1	
10	USER-ERR-IND-3	AN	60	60	1	
10	USER-MAX-ERR-GRP					
15	USER-MAX-ERR	N	61	66	6	
10	USER-MAX-STUD-GRP					
15	USER-MAX-STUD	N	67	72	6	
10	Filler		73	80	8	

Notes:

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-COMM-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
05	USER-COMM-RCD					
10	USER-COMM-ID	AN	1	4	4	'COMM'
10	USER-COMM-ITER	AN	5	6	2	
10	USER-COMM-SEQ-X	AN	7	8	2	COMMENT
10	USER-COMM-DATA-1	AN	9	38	30	COMMENT
10	USER-COMM-DATA-2	AN	39	68	30	
10	Filler	--	69	80	12	

Notes: Input form (2)

DATE: May 1974

RECORD DESIGN FORM

PAGE NO. 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-INST-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-INST-ID	AN	1	4	4	
88	VALID-USER-INST-RCD					
88	VALID-USER-NAPL					'NAPL'
88	VALID-USER-SPP1					'SPP1'
88	VALID-USER-SPP2					'SPP2'
88	VALID-USER-APOL					'APOL'
88	VALID-USER-DIST					'DIST'
88	VALID-USER-BENR					'BENR'
88	VALID-USER-NENR					'NENR'
88	VALID-USER-TRAN					'TRAN'
10	USER-INST-ITER	AN	5	6	2	
10	USER-INST-NAME	AN	7	46	40	
10	Filler		47	80	34	

Notes: Input Form (3)

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-DEFN-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters		Length	Description
			From	To		
10	USER-DEFN-ID	AN	1	4	4	'DEFN'
10	USER-DEFN-ITER	AN	5	6	2	
10	USER-DEFN-DEF	AN	7	10	4	
88	USER-DEFN-SPOP					'SPOP'
88	USER-DEFN-STLV					'STLV'
88	USER-DEFN-EXIT					'EXIT'
88	USER-TITL-SPOP					'SPOP'
88	USER-TITL-BPCD					'BPCD'
88	USER-TITL-PROG					'PROG'
88	USER-TITL-STLV					'STLV'
88	USER-TITL-NEWS					'NEWS'
88	USER-TITL-EXIT					'EXIT'
10	USER-DEFN-NAME	AN	11	26	16	
10	USER-DEFN-ABB	AN	27	30	4	
10	USER-DEFN-SEQ	AN	31	34	4	
10	USER-DEFN-FVAL-GRP					
15	USER-DEFN-FVAL	AN	35	66	8	OCCURS 4
10	Filler		67	80		

Notes: This record format is used for Input Forms (4) and (5).

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-BPCD-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters		Length	Description
			From	To		
10	USER-BPCD-ID	AN	1	4	4	'BPCD'
10	USER-BPCD-ITER	AN	5	6	2	
10	FILLER		7	10	4	
10	USER-BPCD-NAME	AN	11	26	16	
10	USER-BPCD	ABB	AN	17	30	4
10	USER-BPCD-SEQ	AN	31	34	4	
10	USER-BPCD-PROG-GRP					
15	USER-BPCD-PROG	AN	35	70	4	occurs 9
10	FILLER		71	80	10	

Notes: Input Form (6)

DATE: May 1974

RECORD DESIGN FORM

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE RECORD NAME: USER-PROG-RCD

LOGICAL RECORD SIZE: 80 PHYSICAL RECORD SIZE: 80

OUTPUT OF: INPUT TO: SFM01

Level	Element.Name	Class	Characters From	Characters To	Length	Description
10	USER-PROG-ID	AN	1	4	4	'PROG'
10	USER-PROG-ITER	AN	5	6	2	
10	FILLER		7	10	4	
10	USER-PROG-NAME	AN	11	26	16	
10	USER-PROG-ABB	AN	27	30	4	
10	USER-PROG-SEQ	AN	31	34	4	
10	USER-PROG-FVAL-GRP					
15	USER-PROG-FVAL	AN	35	66	8	occurs 4
10	FILLER		67	80	14	

Notes: Input Form (7)

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DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-TERM-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-TERM-ID	AN	1	4	4	'TERM'
10	USER-TERM-ITER	AN	5	6	2	
10	FILLER		7	10	4	
10	USER-TERM-NAME	AN	11	26	16	
10	USER-TERM-ABB	AN	27	30	4	
10	FILLER		31	33	3	
10	USER-TERM-SEQ-GRP					
15	USER-TERM-SEQ	N	35	70	4	occurs 9
10	FILLER		71	80	10	

Notes: Input Form (8)

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-NAPL-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-NAPL-ID	AN	1	4	4	'NAPL'
10	USER-NAPL-ITER	AN	5	6	2	
10	FILLER		7	10	4	
10	USER-NAPL-DATA-GRP		11	70		occurs 6
15	USER-NAPL-SPOP	AN			4	
15	USER-NAPL-NUM	N			6	
10	FILLER		71	80	10	

Notes: Input Form (12)

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-SPP-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-SPP-ID	AN	1	4	4	
88	VALID-USER-SPP1-RCD					'SPP1'
88	VALID-USER-SPP2-RCD					'SPP2'
10	USER-SPP-ITER	AN	5	6	2	
10	USER-SPP-TERM	AN	7	10	4	
10	USER-SPP-SPOP	AN	11	14	4	
10	USER-SPP-ELIM	AN	15	15	1	
88	USER-SPP-ELIM-PREV					'Y'
10	USER-SPP-B-P	AN	16	16	1	
88	USER-SPP-USE-BPC					'B'
88	USER-SPP-USE-PROG					'P'
10	USER-SPP-DATA-GRP		17	68		occurs 4
15	USER-SPP-CAT	AN			4	
15	USER-SPP-STLV	AN			4	
15	USER-SPP-PCT	N			5	999V99
15	USER-SPP-NUM	N			5	Redefines USER-SPP-PCT
						9(5)
10	FILLER		69	80	12	

Notes: Input Forms (13) and (14)

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-APOL-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-APOL-ID	AN	1	4	4	'APOL'
10	USER-APOL-ITER	AN	5	6	2	
10	Filler	--	7	10	4	
10	USER-APOL-SPOP	AN	11	14	4	
10	USER-APOL-B-P	AN	15	15	1	
88	USER-APOL-USE-BPC					'B'
88	USER-APOL-USE-PROG					'P'
10	USER-APOL-DATA-GRP					OCCURS 3
15	USER-APOL-CAT	AN	16		4	
15	USER-APOL-STLV	AN			4	
15	USER-APOL-P-N	AN			1	
15	USER-APOL-PCT	N			6	9(5)V9
15	USER-APOL-NOSHOW	N		72	4	999V9
10	Filler	--	73	80	8	

Notes: Input Form (15)

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-DIST-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-DIST-ID	AN	1	4	4	'DIST'
10	USER-DIST-ITER	AN	5	6	2	
10	Filler	--	7	10	4	
10	USER-DIST-BPC	AN	11	14	4	
10	USER-DIST-STLV	AN	15	18	4	
10	USER-DIST-ELIM	AN	19	19	1	
88	USER-DIST-ELIM-PREV					'Y'
10	USER-DIST-DATA-GRP					OCCURS 6
15	USER-DIST-PROG	AN	20		4	
15	USER-DIST-PCT	N		67	4	999V9
10	Filler	--	68	80	13	

Notes: Input Form (16)

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-ENR-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-ENR-ID	AN	1	4	4	
88	VALID-USER-BENR-RCD					'BENR'
88	VALID-USER-NENR-RCD					'NENR'
10	USER-ENR-ITER	AN	5	6	2	
10	Filler	--	7	10	4	
10	USER-ENR-DATA-GRP					OCCURS 4
15	USER-ENR-PROG	AN	11		4	
15	USER-ENR-STLV	AN			4	
15	USER-ENR-NUM	N		62	5	9(5)
10	Filler	--	63	80	18	

Notes: Input Forms (17) and (18)

DATE: May 1974

RECORD DESIGN FORM

PAGE NO.: 1 of 1

SYSTEM: SFM-IA

FILE NAME: USER-MAIN-FILE

RECORD NAME: USER-TRAN-RCD

LOGICAL RECORD SIZE: 80

PHYSICAL RECORD SIZE: 80

OUTPUT OF:

INPUT TO: SFM01, SFM02

Level	Element Name	Class	Characters From	Characters To	Length	Description
10	USER-TRAN-ID	AN	1	4	4	'TRAN'
10	USER-TRAN-ITER	AN	5	6	2	
10	Filler	--	7	10	4	
10	USER-TRAN-PROG	AN	11	14	4	
10	USER-TRAN-STLV	AN	15	18	4	
10	USER-TRAN-ELIM	AN	19	19	1	
88	USER-TRAN-ELIM-PREV	AN				'Y'
10	USER-TRAN-GRP					OCCURS 4
15	USER-TRAN-D-PROG	AN	20		4	
15	USER-TRAN-D-STLV	AN			4	
15	USER-TRAN-PCT	N		67	4	
10	Filler	--	68	80	13	

Notes: Input Form (19)

DATE
May 1974

RECORD DESIGN FORM

PAGE NO.
1 of 1

SYSTEM SFM-IA

FILE NAME STUD-HIST-FILE RECORD NAME STUD-RECORD

LOGICAL RECORD SIZE 53 PHYSICAL RECORD SIZE 2385

OUTPUT OF INPUT TO SFM10

Level	Element Name	Class	Characters From	Characters To	Length	Description
05	STUD-ID	AN	1	10	10	
05	STUD-REC-TYPE	AN	11	15	5	
88	CONT-REC					'CONT'
88	EXIT-REC					'EXIT'
88	ENTRY-REC					'ENTER'
88	ENTER-REC					'ENTRY'
05	STUD-SOURCE					
10	STUD-SOURCE-TERM	AN	16	18	3	
10	STUD-SOURCE-CAT	AN	19	26	8	
10	STUD-SOURCE-LVL	AN	27	34	8	
05	STUD-DEST					
10	STUD-DEST-TERM	AN	35	37	3	
10	STUD-DEST-CAT	AN	38	45	8	
10	STUD-DEST-LVL	AN	46	53	8	
05	Filler		54	56	3	

Notes: Input Forms (9), (10) and (11)

2841850000045200:2.5C:774:GD:WICHE:2BA164